

## SEQUENCE LISTING

<110> Lovejoy, David  
Chewpoy, R. Bradley  
Barsyte, Dalia  
Rotzinger, Susan

<120> TENEURIN C-TERMINAL ASSOCIATED PEPTIDES (TCAP) AND METHODS AND USES THEREOF

<130> 090931-360630

<140> US 10/510,959

<141> 2005-08-10

<150> PCT/CA03/00622

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<150> US 60/376,879

<151> 2002-05-02

<150> US 60/377,231

<151> 2002-05-03

<150> US 60/424,016

<151> 2002-11-06

<160> 138

<170> PatentIn version 3.1

<210> 1

<211> 1490

<212> DNA

<213> Artificial Sequence

<220>

<223> Rainbow Trout Ten M3 carboxy termini'

<400> 1

|                                                                    |     |
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| tccatctcgg ggggtgcaaca ggaagtgacc cggcaagcca aggctttcct gtccttcgag | 60  |
| aggatgccgg agatccagct gagccgccgg cgctccaacc gggagaaacc ctggctgtgg  | 120 |
| ttcgccaccg ccaagtctct gatcggtaag ggtgtcatgt tggcggtgac gcagggccgt  | 180 |
| gtggtcacca acgctctgaa catcgccaac gaggactgca tcaaggctgc cgccgtcctc  | 240 |
| aacaatgcgt tctacctgga ggacctgcac ttcacgggtgg agggacgcga cacgcactac | 300 |
| ttcatcaaga ccagcctccc ggagagcgac ctgggagcgc tgaggctgac aagcgggagg  | 360 |
| aagtcgctgg agaacggaag tcaacgtgac tgtgtcccag tccaccaccg tggatgaacgg | 420 |
| cagaaccggc gcttcgccga cgtggagctg cagtacggcg ctctagcgct ccacgtgcgc  | 480 |

|             |             |            |             |            |            |      |
|-------------|-------------|------------|-------------|------------|------------|------|
| tatggcatga  | ctctggacga  | ggagaaggcg | cgtgtgctgg  | agcaggccag | gcagaaggcg | 540  |
| ttgtcgagtg  | cctggtccag  | ggagcaacaa | cgggtgaggg  | agggggagga | gggggtgagg | 600  |
| ctgtggacgg  | agggggagaa  | gaggcagctg | ctgagcggga  | ggaaggttct | gggctacgac | 660  |
| gggtactacg  | tcctctccat  | agagcagtac | cccgagctag  | cagactccgc | taacaacatc | 720  |
| cagttcctca  | ggcagagcga  | aatagggaag | aggtaacaga  | cagaatcctc | ggcactggcc | 780  |
| gccaaagaga  | ctacccccctc | caaatcctgc | cccccaacct  | ccctcgctc  | cccccttttc | 840  |
| tctaaaaagg  | gggaggggtcc | aggctagtgc | tgtgttttagc | gccgactagc | tgaacaaac  | 900  |
| agtaaaatgt  | agaatatctt  | aaactgaact | atacctaata  | ctaccactgt | ggggcctgaa | 960  |
| aatcaaacaa  | aacggctcca  | actgacgcaa | atgtttgtcc  | catgtgctat | acagcgttga | 1020 |
| atggactgtg  | gactctcttg  | aaaagagaga | aaaaaaagtc  | aaaactctcg | gtttgtgaaa | 1080 |
| ggagaaaaaa  | acgttttttt  | tttttttaaa | tagacttcct  | gaatttgctt | tcggaaaaaa | 1140 |
| tatttttaaaa | agaaagaaga  | aatgtgttta | catacgcata  | acactacaac | acgtctggac | 1200 |
| taatagaaga  | aaagccttct  | ggtttcttac | acaggacaac  | gtctataatc | tgattctaca | 1260 |
| tcctgacgac  | tgacctttga  | ttgacctttg | cgtactgaaa  | aaggtagtgt | tgttgttcgc | 1320 |
| agtaggacca  | tgggtctcca  | atggtggtaa | ctagacagtt  | aaaaccactt | gttgaaacca | 1380 |
| cttgcttggt  | cttctgcttt  | tctttccaaa | agggacaaaa  | cagctccac  | caagtgactt | 1440 |
| ctttaccaat  | actagatcaa  | agtgggacgt | tttgggctcg  | tgccgaattc |            | 1490 |

&lt;210&gt; 2

&lt;211&gt; 756

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Rainbow Trout Ten M3 coding sequence of carboxy termini of Ten M3

&lt;400&gt; 2

|            |            |             |            |            |            |     |
|------------|------------|-------------|------------|------------|------------|-----|
| tccatctcgg | gggtgcaaca | ggaagtgacc  | cggcaagcca | aggctttcct | gtccttcgag | 60  |
| aggatgccgg | agatccagct | gagccgccgg  | cgctccaacc | gggagaaacc | ctggctgtgg | 120 |
| ttcgccaccg | ccaagtctct | gatcggttaag | ggtgtcatgt | tggcggtgac | gcagggccgt | 180 |
| gtggtcacca | acgctctgaa | catcgccaac  | gaggactgca | tcaaggtcgc | cgccgtcctc | 240 |
| aacaatgcgt | tctacctgga | ggacctgcac  | ttcacgggtg | agggacgcga | cacgcactac | 300 |
| ttcatcaaga | ccagcctccc | ggagagcgac  | ctgggagcgc | tgaggctgac | aagcgggagg | 360 |

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aagtcgctgg agaacggaag tcaacgtgac tgtgtcccag tccaccaccg tggatgaacgg      420
cagaaccggc gcttcgccga cgtggagctg cagtacggcg ctctagcgct ccacgtgcgc      480
tatggcatga ctctggacga ggagaaggcg cgtgtgctgg agcaggccag gcagaaggcg      540
ttgtcgagtg cctggtccag ggagcaacaa cgggtgaggg agggggagga gggggtgagg      600
ctgtggacgg agggggagaa gaggcagctg ctgagcggga ggaagggttct gggctacgac      660
gggtactacg tcctctccat agagcagtac cccgagctag cagactccgc taacaacatc      720
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<210> 3
<211> 251
<212> PRT
<213> Artificial Sequence

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<220>
<223> Rainbow Trout Ten M3 carboxy termini of Ten M3

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<400> 3

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```

Ser Ile Ser Gly Val Gln Gln Glu Val Thr Arg Gln Ala Lys Ala Phe
1              5              10              15

```

```

Leu Ser Phe Glu Arg Met Pro Glu Ile Gln Leu Ser Arg Arg Arg Ser
          20              25              30

```

```

Asn Arg Glu Lys Pro Trp Leu Trp Phe Ala Thr Ala Lys Ser Leu Ile
          35              40              45

```

```

Gly Lys Gly Val Met Leu Ala Val Thr Gln Gly Arg Val Val Thr Asn
          50              55              60

```

```

Ala Leu Asn Ile Ala Asn Glu Asp Cys Ile Lys Val Ala Ala Val Leu
65              70              75              80

```

```

Asn Asn Ala Phe Tyr Leu Glu Asp Leu His Phe Thr Val Glu Gly Arg
          85              90              95

```

```

Asp Thr His Tyr Phe Ile Lys Thr Ser Leu Pro Glu Ser Asp Leu Gly
          100             105             110

```

```

Ala Leu Arg Leu Thr Ser Gly Arg Lys Ser Leu Glu Asn Gly Val Asn
          115             120             125

```

Val Thr Val Ser Gln Ser Thr Thr Val Val Asn Gly Arg Thr Arg Arg  
 130 135 140

Phe Ala Asp Val Glu Leu Gln Tyr Gly Ala Leu Ala Leu His Val Arg  
 145 150 155 160

Tyr Gly Met Thr Leu Asp Glu Glu Lys Ala Arg Val Leu Glu Gln Ala  
 165 170 175

Arg Gln Lys Ala Leu Ser Ser Ala Trp Ser Arg Glu Gln Gln Arg Val  
 180 185 190

Arg Glu Gly Glu Glu Gly Val Arg Leu Trp Thr Glu Gly Glu Lys Arg  
 195 200 205

Gln Leu Leu Ser Gly Arg Lys Val Leu Gly Tyr Asp Gly Tyr Tyr Val  
 210 215 220

Leu Ser Ile Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Ile  
 225 230 235 240

Gln Phe Leu Arg Gln Ser Glu Ile Gly Lys Arg  
 245 250

<210> 4  
 <211> 252  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mouse Ten M1

<400> 4

Met Ile Leu Gly Ile Gln Cys Glu Leu Gln Lys Gln Leu Arg Asn Phe  
 1 5 10 15

Ile Ser Leu Asp Gln Leu Pro Met Thr Pro Gln Tyr Asn Glu Gly Arg  
 20 25 30

Cys Leu Glu Gly Gly Lys Gln Pro Arg Phe Ala Ala Val Pro Ser Val  
 35 40 45

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Phe Gly Lys Gly Ile Lys Phe Ala Ile Lys Glu Gly Ile Val Thr Ala  
50 55 60

Asp Ile Ile Gly Val Ala Asn Glu Asp Ser Arg Arg Leu Ala Ala Ile  
65 70 75 80

Leu Asn Asn Ala His Tyr Leu Glu Asn Leu His Phe Thr Ile Glu Gly  
85 90 95

Arg Asp Thr His Tyr Phe Ile Lys Leu Gly Ser Leu Glu Glu Asp Leu  
100 105 110

Val Leu Ile Gly Asn Thr Gly Gly Arg Arg Ile Leu Glu Asn Gly Val  
115 120 125

Asn Val Thr Val Ser Gln Met Thr Ser Val Leu Asn Gly Arg Thr Arg  
130 135 140

Arg Phe Ala Asp Ile Gln Leu Gln His Gly Ala Leu Cys Phe Asn Ile  
145 150 155 160

Arg Tyr Gly Thr Thr Val Glu Glu Glu Lys Asn His Val Leu Glu Met  
165 170 175

Ala Arg Gln Arg Ala Val Ala Gln Ala Trp Thr Gln Glu Gln Arg Arg  
180 185 190

Leu Gln Glu Gly Glu Glu Gly Thr Arg Val Trp Thr Glu Gly Glu Lys  
195 200 205

Gln Gln Leu Leu Gly Thr Gly Arg Val Gln Gly Tyr Asp Gly Tyr Phe  
210 215 220

Val Leu Ser Val Glu Gln Tyr Leu Glu Leu Ser Asp Ser Ala Asn Asn  
225 230 235 240

Ile His Phe Met Arg Gln Ser Glu Ile Gly Arg Arg  
245 250

<210> 5

<211> 253

<212> PRT

<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mouse Ten M2

&lt;400&gt; 5

Leu Ile Thr Gly Val Gln Gln Thr Thr Glu Arg His Asn Gln Ala Phe  
 1 5 10 15

Leu Ala Leu Glu Gly Gln Val Ile Thr Lys Lys Leu His Ala Ser Ile  
 20 25 30

Arg Glu Lys Ala Gly His Trp Phe Ala Thr Thr Thr Pro Ile Ile Gly  
 35 40 45

Lys Gly Ile Met Phe Ala Ile Lys Glu Gly Arg Val Thr Thr Gly Val  
 50 55 60

Ser Ser Ile Ala Ser Glu Asp Ser Arg Lys Val Ala Ser Val Leu Asn  
 65 70 75 80

Asn Ala Tyr Tyr Leu Asp Lys Met His Tyr Ser Ile Glu Gly Lys Asp  
 85 90 95

Thr His Tyr Phe Val Lys Ile Gly Ala Ala Asp Gly Asp Leu Val Thr  
 100 105 110

Leu Gly Thr Thr Ile Gly Arg Lys Val Leu Glu Ser Gly Val Asn Val  
 115 120 125

Thr Val Ser Gln Pro Thr Leu Leu Val Asn Gly Arg Thr Arg Arg Phe  
 130 135 140

Thr Asn Ile Glu Phe Gln Tyr Ser Thr Leu Leu Leu Ser Ile Arg Tyr  
 145 150 155 160

Gly Leu Thr Pro Asp Thr Leu Asp Glu Glu Lys Ala Arg Val Leu Asp  
 165 170 175

Gln Ala Gly Gln Arg Ala Leu Gly Thr Ala Trp Ala Lys Glu Gln Gln  
 180 185 190

Lys Ala Arg Asp Gly Arg Glu Gly Ser Arg Leu Trp Thr Glu Gly Glu  
 195 200 205

Lys Gln Gln Leu Leu Ser Thr Gly Arg Val Gln Gly Tyr Glu Gly Tyr  
 210 215 220

Tyr Val Leu Pro Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ser Ser  
 225 230 235 240

Asn Ile Gln Phe Leu Arg Gln Asn Glu Met Gly Lys Arg  
 245 250

<210> 6  
 <211> 251  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mouse Ten M3

<400> 6

Pro Ile Phe Gly Val Gln Gln Gln Val Ala Arg Gln Ala Lys Ala Phe  
 1 5 10 15

Leu Ser Leu Gly Lys Met Ala Glu Val Gln Val Ser Arg Arg Lys Ala  
 20 25 30

Gly Ala Glu Gln Ser Trp Leu Trp Phe Ala Thr Val Lys Ser Leu Ile  
 35 40 45

Gly Lys Gly Val Met Leu Ala Val Ser Gln Gly Arg Val Gln Thr Asn  
 50 55 60

Val Leu Asn Ile Ala Asn Glu Asp Cys Ile Lys Val Ala Ala Val Leu  
 65 70 75 80

Asn Asn Ala Phe Tyr Leu Glu Asn Leu His Phe Thr Ile Glu Gly Lys  
 85 90 95

Asp Thr His Tyr Phe Ile Lys Thr Thr Thr Pro Glu Ser Asp Leu Gly  
 100 105 110

Thr Leu Arg Leu Thr Ser Gly Arg Lys Ala Leu Glu Asn Gly Ile Asn  
 115 120 125

8/77

Val Thr Val Ser Gln Ser Thr Thr Val Val Asn Gly Arg Thr Arg Arg  
130 135 140

Phe Ala Asp Val Glu Met Gln Phe Gly Ala Leu Ala Leu His Val Arg  
145 150 155 160

Tyr Gly Met Thr Leu Asp Glu Glu Lys Ala Arg Ile Leu Glu Gln Ala  
165 170 175

Arg Gln Arg Ala Leu Ala Arg Ala Trp Ala Arg Glu Gln Gln Arg Val  
180 185 190

Arg Asp Gly Glu Glu Gly Ala Arg Leu Trp Thr Glu Gly Glu Lys Arg  
195 200 205

Gln Leu Leu Ser Ala Gly Lys Val Gln Gly Tyr Asp Gly Tyr Tyr Val  
210 215 220

Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Ile  
225 230 235 240

Gln Phe Leu Arg Gln Ser Glu Ile Gly Lys Arg  
245 250

<210> 7  
<211> 243  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Mouse Ten M4

<400> 7

Ser Ile Leu Gly Val Gln Cys Glu Val Gln Lys Gln Leu Lys Ala Phe  
1 5 10 15

Val Thr Leu Glu Arg Phe Asp Gln Leu Tyr Gly Ser Thr Ile Thr Ser  
20 25 30

Cys Gln Gln Ala Pro Glu Thr Lys Lys Phe Ala Ser Ser Gly Ser Ile  
35 40 45

Phe Gly Lys Gly Val Lys Phe Ala Leu Lys Asp Gly Arg Val Thr Thr  
50 55 60



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Asp Ile Ile Ser Val Ala Asn Glu Asp Gly Arg Arg Ile Ala Ala Ile  
65 70 75 80

Leu Asn Asn Ala His Tyr Leu Glu Asn Leu His Phe Thr Ile Asp Gly  
85 90 95

Val Asp Thr His Tyr Phe Val Lys Pro Gly Pro Ser Glu Gly Asp Leu  
100 105 110

Ala Ile Leu Gly Leu Ser Gly Gly Arg Arg Thr Leu Glu Asn Gly Val  
115 120 125

Asn Val Thr Val Ser Gln Ile Asn Thr Met Leu Ile Gln Leu Gln Tyr  
130 135 140

Arg Ala Leu Cys Leu Asn Thr Arg Tyr Gly Thr Thr Val Asp Glu Glu  
145 150 155 160

Lys Val Arg Val Leu Glu Leu Ala Arg Gln Arg Ala Val Arg Gln Ala  
165 170 175

Trp Ala Arg Glu Gln Gln Arg Leu Arg Glu Gly Glu Glu Gly Leu Arg  
180 185 190

Ala Trp Thr Asp Gly Glu Lys Gln Gln Val Leu Asn Thr Gly Arg Val  
195 200 205

Gln Gly Tyr Asp Gly Phe Phe Val Thr Ser Val Glu Gln Tyr Pro Glu  
210 215 220

Leu Ser Asp Ser Ala Asn Asn Ile His Phe Met Arg Gln Ser Glu Met  
225 230 235 240

Gly Arg Arg

<210> 8

<211> 252

<212> PRT

<213> Artificial Sequence

<220>

10/77

<223> Human Ten M1

<400> 8

Thr Ile Leu Gly Ile Gln Cys Glu Leu Gln Lys Gln Leu Arg Asn Phe  
1 5 10 15

Ile Ser Leu Asp Gln Leu Pro Met Thr Pro Arg Tyr Asn Asp Gly Arg  
20 25 30

Cys Leu Glu Gly Gly Lys Gln Pro Arg Phe Ala Ala Val Pro Ser Val  
35 40 45

Phe Gly Lys Gly Ile Lys Phe Ala Ile Lys Asp Gly Ile Val Thr Ala  
50 55 60

Asp Ile Ile Gly Val Ala Asn Glu Asp Ser Arg Arg Leu Ala Ala Ile  
65 70 75 80

Leu Asn Asn Ala His Tyr Leu Glu Asn Leu His Phe Thr Ile Glu Gly  
85 90 95

Arg Asp Thr His Tyr Phe Ile Lys Leu Gly Ser Leu Glu Glu Asp Leu  
100 105 110

Val Leu Ile Gly Asn Thr Gly Gly Arg Arg Ile Leu Glu Asn Gly Val  
115 120 125

Asn Val Thr Val Ser Gln Met Thr Ser Val Leu Asn Gly Arg Thr Arg  
130 135 140

Arg Phe Ala Asp Ile Gln Leu Gln His Gly Ala Leu Cys Phe Asn Ile  
145 150 155 160

Arg Tyr Gly Thr Thr Val Glu Glu Glu Lys Asn His Val Leu Glu Ile  
165 170 175

Ala Arg Gln Arg Ala Val Ala Gln Ala Trp Thr Lys Glu Gln Arg Arg  
180 185 190

Leu Gln Glu Gly Glu Glu Gly Ile Arg Ala Trp Thr Glu Gly Glu Lys  
195 200 205

11/77

Gln Gln Leu Leu Ser Thr Gly Arg Val Gln Gly Tyr Asp Gly Tyr Phe  
210 215 220

Val Leu Ser Val Glu Gln Tyr Leu Glu Leu Ser Asp Ser Ala Asn Asn  
225 230 235 240

Ile His Phe Met Arg Gln Ser Glu Ile Gly Arg Arg  
245 250

<210> 9  
<211> 253  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Human Ten M2

<400> 9

Leu Ile Thr Gly Val Gln Gln Thr Thr Glu Arg His Asn Gln Ala Phe  
1 5 10 15

Met Ala Leu Glu Gly Gln Val Ile Thr Lys Lys Leu His Ala Ser Ile  
20 25 30

Arg Glu Lys Ala Gly His Trp Phe Ala Thr Thr Thr Pro Ile Ile Gly  
35 40 45

Lys Gly Ile Met Phe Ala Ile Lys Glu Gly Arg Val Thr Thr Gly Val  
50 55 60

Ser Ser Ile Ala Ser Glu Asp Ser Arg Lys Val Ala Ser Val Leu Asn  
65 70 75 80

Asn Ala Tyr Tyr Leu Asp Lys Met His Tyr Ser Ile Glu Gly Lys Asp  
85 90 95

Thr His Tyr Phe Val Lys Ile Gly Ser Ala Asp Gly Asp Leu Val Thr  
100 105 110

Leu Gly Thr Thr Ile Gly Arg Lys Val Leu Glu Ser Gly Val Asn Val  
115 120 125

Thr Val Ser Gln Pro Thr Leu Leu Val Asn Gly Arg Thr Arg Arg Phe  
130 135 140

12/77

Thr Asn Ile Glu Phe Gln Tyr Ser Thr Leu Leu Leu Ser Ile Arg Tyr  
145 150 155 160

Gly Leu Thr Pro Asp Thr Leu Asp Glu Glu Lys Ala Arg Val Leu Asp  
165 170 175

Gln Ala Arg Gln Arg Ala Leu Gly Thr Ala Trp Ala Lys Glu Gln Gln  
180 185 190

Lys Ala Arg Asp Gly Arg Glu Gly Ser Arg Leu Trp Thr Glu Gly Glu  
195 200 205

Lys Gln Gln Leu Leu Ser Thr Gly Arg Val Gln Gly Tyr Glu Gly Tyr  
210 215 220

Tyr Val Leu Pro Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ser Ser  
225 230 235 240

Asn Ile Gln Phe Leu Arg Gln Asn Glu Met Gly Lys Arg  
245 250

<210> 10  
<211> 251  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Human Ten M3

<400> 10

Pro Ile Phe Gly Val Gln Gln Gln Val Ala Arg Gln Ala Lys Ala Phe  
1 5 10 15

Leu Ser Leu Gly Lys Met Ala Glu Val Gln Val Ser Arg Arg Arg Ala  
20 25 30

Gly Gly Ala Gln Ser Trp Leu Trp Phe Ala Thr Val Lys Ser Leu Ile  
35 40 45

Gly Lys Gly Val Met Leu Ala Val Ser Gln Gly Arg Val Gln Thr Asn  
50 55 60

13/77

Val Leu Asn Ile Ala Asn Glu Asp Cys Ile Lys Val Ala Ala Val Leu  
65 70 75 80

Asn Asn Ala Phe Tyr Leu Glu Asn Leu His Phe Thr Ile Glu Gly Lys  
85 90 95

Asp Thr His Tyr Phe Ile Lys Thr Thr Thr Pro Glu Ser Asp Leu Gly  
100 105 110

Thr Leu Arg Leu Thr Ser Gly Arg Lys Ala Leu Glu Asn Gly Ile Asn  
115 120 125

Val Thr Val Ser Gln Ser Thr Thr Val Val Asn Gly Arg Thr Arg Arg  
130 135 140

Phe Ala Asp Val Glu Met Gln Phe Gly Ala Leu Ala Leu His Val Arg  
145 150 155 160

Tyr Gly Met Thr Leu Asp Glu Glu Lys Ala Arg Ile Leu Glu Gln Ala  
165 170 175

Arg Gln Arg Ala Leu Ala Arg Ala Trp Ala Arg Glu Gln Gln Arg Val  
180 185 190

Arg Asp Gly Glu Glu Gly Ala Arg Leu Trp Thr Glu Gly Glu Lys Arg  
195 200 205

Gln Leu Leu Ser Ala Gly Lys Val Gln Gly Tyr Asp Gly Tyr Tyr Val  
210 215 220

Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Ile  
225 230 235 240

Gln Phe Leu Arg Gln Ser Glu Ile Gly Arg Arg  
245 250

<210> 11

<211> 252

<212> PRT

<213> Artificial Sequence

<220>

<223> Human Ten M4

&lt;400&gt; 11

Ser Ile Leu Gly Val Gln Cys Glu Val Gln Lys Gln Leu Lys Ala Phe  
 1 5 10 15

Val Thr Leu Glu Arg Phe Asp Gln Leu Tyr Gly Ser Thr Ile Thr Ser  
 20 25 30

Cys Leu Gln Ala Pro Lys Thr Lys Lys Phe Ala Ser Ser Gly Ser Val  
 35 40 45

Phe Gly Lys Gly Val Lys Phe Ala Leu Lys Asp Gly Arg Val Thr Thr  
 50 55 60

Asp Ile Ile Ser Val Ala Asn Glu Asp Gly Arg Arg Val Ala Ala Ile  
 65 70 75 80

Leu Asn His Ala His Tyr Leu Glu Asn Leu His Phe Thr Ile Asp Gly  
 85 90 95

Val Asp Thr His Tyr Phe Val Lys Pro Gly Pro Ser Glu Gly Asp Leu  
 100 105 110

Ala Ile Leu Gly Leu Ser Gly Gly Arg Arg Thr Leu Glu Asn Gly Val  
 115 120 125

Asn Val Thr Val Ser Gln Ile Asn Thr Val Leu Ser Gly Arg Thr Arg  
 130 135 140

Arg Tyr Thr Asp Ile Gln Leu Gln Tyr Gly Ala Leu Cys Leu Asn Thr  
 145 150 155 160

Arg Tyr Gly Thr Thr Leu Asp Glu Glu Lys Ala Arg Val Leu Glu Leu  
 165 170 175

Ala Arg Gln Arg Ala Val Arg Gln Ala Trp Ala Arg Glu Gln Gln Arg  
 180 185 190

Leu Arg Glu Gly Glu Glu Gly Leu Arg Ala Trp Thr Glu Gly Glu Lys  
 195 200 205

Gln Gln Val Leu Ser Thr Gly Arg Val Gln Gly Tyr Asp Gly Phe Phe  
 210 215 220

Val Ile Ser Val Glu Gln Tyr Pro Glu Leu Ser Asp Ser Ala Asn Asn  
 225 230 235 240

Ile His Phe Met Arg Gln Ser Glu Met Gly Arg Arg  
 245 250

<210> 12  
 <211> 252  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish Ten M3

<400> 12

Ser Ile Ser Gly Val Gln Gln Glu Val Met Arg Gln Ala Lys Ala Phe  
 1 5 10 15

Leu Ser Phe Glu Arg Met Pro Glu Ile Gln Leu Ser Arg Arg Arg Ser  
 20 25 30

Ser Arg Glu Lys Pro Trp Leu Trp Phe Ala Thr Val Lys Ser Leu Ile  
 35 40 45

Gly Lys Gly Val Met Leu Ala Ile Thr Ser Lys Gly Gln Val Ala Thr  
 50 55 60

Asn Ala Leu Asn Ile Ala Asn Glu Asp Cys Ile Lys Val Val Thr Val  
 65 70 75 80

Leu Asn Asn Ala Phe Tyr Leu Glu Asp Leu His Phe Thr Val Glu Gly  
 85 90 95

Arg Asp Thr His Tyr Phe Ile Lys Thr Ser Leu Pro Glu Ser Asp Leu  
 100 105 110

Gly Ala Leu Arg Leu Thr Ser Gly Arg Lys Ser Leu Glu Asn Gly Val  
 115 120 125

Asn Val Thr Val Ser Gln Ser Thr Thr Val Val Asn Gly Arg Thr Arg  
 130 135 140

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Arg Phe Ala Asp Val Glu Leu Gln Tyr Gly Ala Leu Ala Leu His Val  
145 150 155 160

Arg Tyr Gly Met Thr Leu Asp Glu Glu Lys Ala Arg Val Leu Glu Gln  
165 170 175

Ala Arg Gln Arg Ala Leu Ser Ser Ala Trp Ala Arg Glu Gln Gln Arg  
180 185 190

Val Arg Asp Gly Glu Glu Gly Val Arg Leu Trp Thr Glu Gly Glu Lys  
195 200 205

Arg Gln Leu Leu Ser Ser Gly Lys Val Leu Gly Tyr Asp Gly Tyr Tyr  
210 215 220

Val Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn  
225 230 235 240

Val Gln Phe Leu Arg Gln Ser Glu Ile Gly Lys Arg  
245 250

<210> 13  
<211> 40  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Rainbow Trout TCAP3 (40a.a.)

<400> 13

Gln Leu Leu Ser Gly Arg Lys Val Leu Gly Tyr Asp Gly Tyr Tyr Val  
1 5 10 15

Leu Ser Ile Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Ile  
20 25 30

Gln Phe Leu Arg Gln Ser Glu Ile  
35 40

<210> 14  
<211> 41  
<212> PRT  
<213> Artificial Sequence

<220>



<223> Rainbow Trout TCAP 3 (41a.a.)

<400> 14

Arg Gln Leu Leu Ser Gly Arg Lys Val Leu Gly Tyr Asp Gly Tyr Tyr  
1 5 10 15

Val Leu Ser Ile Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn  
20 25 30

Ile Gln Phe Leu Arg Gln Ser Glu Ile  
35 40

<210> 15

<211> 43

<212> PRT

<213> Artificial Sequence

<220>

<223> Rainbow Trout preTCAP3 (43 a.a.)

<400> 15

Gln Leu Leu Ser Gly Arg Lys Val Leu Gly Tyr Asp Gly Tyr Tyr Val  
1 5 10 15

Leu Ser Ile Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Ile  
20 25 30

Gln Phe Leu Arg Gln Ser Glu Ile Gly Lys Arg  
35 40

<210> 16

<211> 44

<212> PRT

<213> Artificial Sequence

<220>

<223> Rainbow Trout preTCAP3 (44 a.a.)

<400> 16

Arg Gln Leu Leu Ser Gly Arg Lys Val Leu Gly Tyr Asp Gly Tyr Tyr  
1 5 10 15

Val Leu Ser Ile Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn  
20 25 30

Ile Gln Phe Leu Arg Gln Ser Glu Ile Gly Lys Arg  
 35 40

<210> 17  
 <211> 120  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Rainbow Trout TCAP3 (120 n.a.)

<400> 17  
 cagctgctga gcgggaggaa ggttctgggc tacgacgggt actacgtcct ctccatagag 60  
 cagtaccccc agctagcaga ctccgctaac aacatccagt tcctcaggca gagcgaaata 120

<210> 18  
 <211> 123  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Rainbow Trout TCAP3 (123 n.a.)

<400> 18  
 aggcagctgc tgagcgggag gaaggttctg ggctacgacg ggtactacgt cctctccata 60  
 gagcagtacc ccgagctagc agactccgct aacaacatcc agttcctcag gcagagcgaa 120  
 ata 123

<210> 19  
 <211> 129  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Rainbow Trout preTCAP3 (129 n.a.)

<400> 19  
 cagctgctga gcgggaggaa ggttctgggc tacgacgggt actacgtcct ctccatagag 60  
 cagtaccccc agctagcaga ctccgctaac aacatccagt tcctcaggca gagcgaaata 120  
 gggaagagg 129

<210> 20  
 <211> 132  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Rainbow Trout preTCAP3 (132 n.a.)

<400> 20  
aggcagctgc tgagcgggag gaaggttctg ggctacgacg ggtactacgt cctctccata 60  
gagcagtacc ccgagctagc agactccgct aacaacatcc agttcctcag gcagagcgaa 120  
atagggaga gg 132

<210> 21  
<211> 40  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Zebrafish TCAP3 (40 a.a.)

<400> 21  
Gln Leu Leu Ser Ser Gly Lys Val Leu Gly Tyr Asp Gly Tyr Tyr Val  
1 5 10 15  
Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Val  
20 25 30  
Gln Phe Leu Arg Gln Ser Glu Ile  
35 40

<210> 22  
<211> 41  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Zebrafish TCAP3 (41 a.a.)

<400> 22  
Arg Gln Leu Leu Ser Ser Gly Lys Val Leu Gly Tyr Asp Gly Tyr Tyr  
1 5 10 15  
Val Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn  
20 25 30  
Val Gln Phe Leu Arg Gln Ser Glu Ile  
35 40

<210> 23  
<211> 43

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish preTCAP3 (43 a.a.)

<400> 23

Gln Leu Leu Ser Ser Gly Lys Val Leu Gly Tyr Asp Gly Tyr Tyr Val  
 1 5 10 15

Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Val  
 20 25 30

Gln Phe Leu Arg Gln Ser Glu Ile Gly Lys Arg  
 35 40

<210> 24  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish preTCAP3 (44 a.a.)

<400> 24

Arg Gln Leu Leu Ser Ser Gly Lys Val Leu Gly Tyr Asp Gly Tyr Tyr  
 1 5 10 15

Val Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn  
 20 25 30

Val Gln Phe Leu Arg Gln Ser Glu Ile Gly Lys Arg  
 35 40

<210> 25  
 <211> 120  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish TCAP3 (120 n.a.)

<400> 25  
 cagttgctca gctctgggaa ggtgctgggt tacgatgggt actatgtact atcagtgagg 60  
 caataccctg aactggccga cagtgccaac aatgtccagt tcttgaggca gagtgagata 120

<210> 26  
 <211> 123  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish TCAP3 (123 n.a.)

<400> 26  
 aggcagttgc tcagctctgg gaaggtgctg ggttacgatg gttactatgt actatcagtg 60  
 gagcaatacc ctgaactggc cgacagtgcc aacaatgtcc agttcttgag gcagagtgag 120  
 ata 123

<210> 27  
 <211> 129  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish TCAP3 (129 n.a.)

<400> 27  
 cagttgctca gctctgggaa ggtgctgggt tacgatgggt actatgtact atcagtggag 60  
 caataccctg aactggccga cagtgccaac aatgtccagt tcttgaggca gagtgagata 120  
 gggaagagg 129

<210> 28  
 <211> 132  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish preTCAP3 (132 n.a.)

<400> 28  
 aggcagttgc tcagctctgg gaaggtgctg ggttacgatg gttactatgt actatcagtg 60  
 gagcaatacc ctgaactggc cgacagtgcc aacaatgtcc agttcttgag gcagagtgag 120  
 atagggaaga gg 132

<210> 29  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish TCAP4 (40 a.a.)

&lt;400&gt; 29

Gln Leu Leu Ser Ser Gly Arg Val Gln Gly Tyr Glu Gly Phe Tyr Ile  
 1 5 10 15

Val Ser Val Asp Gln Phe Pro Glu Leu Thr Asp Asn Ile Asn Asn Val  
 20 25 30

His Phe Trp Arg Gln Thr Glu Met  
 35 40

&lt;210&gt; 30

&lt;211&gt; 41

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Zebrafish TCAP4 (41 a.a.)

&lt;400&gt; 30

Gln Gln Leu Leu Ser Ser Gly Arg Val Gln Gly Tyr Glu Gly Phe Tyr  
 1 5 10 15

Ile Val Ser Val Asp Gln Phe Pro Glu Leu Thr Asp Asn Ile Asn Asn  
 20 25 30

Val His Phe Trp Arg Gln Thr Glu Met  
 35 40

&lt;210&gt; 31

&lt;211&gt; 43

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Zebrafish preTCAP4 (43 a.a.)

&lt;400&gt; 31

Gln Leu Leu Ser Ser Gly Arg Val Gln Gly Tyr Glu Gly Phe Tyr Ile  
 1 5 10 15

Val Ser Val Asp Gln Phe Pro Glu Leu Thr Asp Asn Ile Asn Asn Val  
 20 25 30

His Phe Trp Arg Gln Thr Glu Met Gly Arg Arg  
 35 40

<210> 32  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish preTCAP4 (44 a.a.)

<400> 32

Gln Gln Leu Leu Ser Ser Gly Arg Val Gln Gly Tyr Glu Gly Phe Tyr  
 1 5 10 15

Ile Val Ser Val Asp Gln Phe Pro Glu Leu Thr Asp Asn Ile Asn Asn  
 20 25 30

Val His Phe Trp Arg Gln Thr Glu Met Gly Arg Arg  
 35 40

<210> 33  
 <211> 120  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish TCAP4 (120 n.a.)

<400> 33  
 cagctcctaa gctctggacg tgtacagggc tacgaaggct tctacatagt atcagtcgac 60  
 cagttcccag agttgactga caacataaat aacgtccatt tctggcgaca gactgagatg 120

<210> 34  
 <211> 123  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish TCAP4 (123 n.a.)

<400> 34  
 cagcagctcc taagctctgg acgtgtacag ggctacgaag gcttctacat agtatcagtc 60  
 gaccagttcc cagagttgac tgacaacata aataacgtcc atttctggcg acagactgag 120  
 atg 123

<210> 35  
 <211> 129

<212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish preTCAP4 (129 n.a.)

<400> 35  
 cagctcctaa gctctggacg tgtacagggc tacgaaggct tctacatagt atcagtcgac 60  
 cagttcccag agttgactga caacataaat aacgtccatt tctggcgaca gactgagatg 120  
 ggacgcagg 129

<210> 36  
 <211> 132  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish preTCAP4 (132 n.a.)

<400> 36  
 cagcagctcc taagctctgg acgtgtacag ggctacgaag gcttctacat agtatcagtc 60  
 gaccagttcc cagagttgac tgacaacata aataacgtcc atttctggcg acagactgag 120  
 atgggacgca gg 132

<210> 37  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mouse TCAP1 (40 a.a.)

<400> 37

Gln Leu Leu Gly Thr Gly Arg Val Gln Gly Tyr Asp Gly Tyr Phe Val  
 1 5 10 15

Leu Ser Val Glu Gln Tyr Leu Glu Leu Ser Asp Ser Ala Asn Asn Ile  
 20 25 30

His Phe Met Arg Gln Ser Glu Ile  
 35 40

<210> 38  
 <211> 41  
 <212> PRT  
 <213> Artificial Sequence



&lt;220&gt;

&lt;223&gt; Mouse TCAP1 (41 a.a.)

&lt;400&gt; 38

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Gln | Leu | Leu | Gly | Thr | Gly | Arg | Val | Gln | Gly | Tyr | Asp | Gly | Tyr | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Leu | Ser | Val | Glu | Gln | Tyr | Leu | Glu | Leu | Ser | Asp | Ser | Ala | Asn | Asn |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | His | Phe | Met | Arg | Gln | Ser | Glu | Ile |
|     |     | 35  |     |     |     |     | 40  |     |

&lt;210&gt; 39

&lt;211&gt; 43

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mouse preTCAP1 (43 a.a.)

&lt;400&gt; 39

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Leu | Leu | Gly | Thr | Gly | Arg | Val | Gln | Gly | Tyr | Asp | Gly | Tyr | Phe | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ser | Val | Glu | Gln | Tyr | Leu | Glu | Leu | Ser | Asp | Ser | Ala | Asn | Asn | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Phe | Met | Arg | Gln | Ser | Glu | Ile | Gly | Arg | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     |

&lt;210&gt; 40

&lt;211&gt; 44

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mouse preTCAP1 (44 a.a.)

&lt;400&gt; 40

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Gln | Leu | Leu | Gly | Thr | Gly | Arg | Val | Gln | Gly | Tyr | Asp | Gly | Tyr | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Leu | Ser | Val | Glu | Gln | Tyr | Leu | Glu | Leu | Ser | Asp | Ser | Ala | Asn | Asn |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

Ile His Phe Met Arg Gln Ser Glu Ile Gly Arg Arg  
           35                                          40

<210> 41  
 <211> 120  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse TCAP1 (120 n.a.)

<400> 41  
 cagcttttgg gcaccgggag ggtgcagggg tatgatgggt attttgtctt gtctgttgag 60  
 cagtatttag aactttcaga cagtgccaac aatattcact tcatgagaca gagtgaata 120

<210> 42  
 <211> 123  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse TCAP1 (123 n.a.)

<400> 42  
 cagcagcttt tgggcaccgg gaggggtgcag gggatatgatg ggtattttgt cttgtctggt 60  
 gagcagtatt tagaactttc agacagtgcc aacaatattc acttcatgag acagagtgaa 120  
 ata 123

<210> 43  
 <211> 129  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP1 (129 n.a.)

<400> 43  
 cagcttttgg gcaccgggag ggtgcagggg tatgatgggt attttgtctt gtctgttgag 60  
 cagtatttag aactttcaga cagtgccaac aatattcact tcatgagaca gagtgaata 120  
 ggcaggagg 129

<210> 44  
 <211> 132  
 <212> DNA  
 <213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mouse preTCAP1 (132 n.a.)

&lt;400&gt; 44

cagcagcttt tgggcaccgg gaggggtgcag gggatatgatg ggtattttgt cttgtctggt 60

gagcagtatt tagaactttc agacagtgcc aacaatatc acttcatgag acagagtgaa 120

ataggcagga gg 132

&lt;210&gt; 45

&lt;211&gt; 40

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mouse TCAP2 (40 a.a.)

&lt;400&gt; 45

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Leu | Leu | Ser | Thr | Gly | Arg | Val | Gln | Gly | Tyr | Glu | Gly | Tyr | Tyr | Val |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Pro | Val | Glu | Gln | Tyr | Pro | Glu | Leu | Ala | Asp | Ser | Ser | Ser | Asn | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Phe | Leu | Arg | Gln | Asn | Glu | Ile |
|     |     | 35  |     |     |     | 40  |     |

&lt;210&gt; 46

&lt;211&gt; 41

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mouse TCAP2 (41 a.a.)

&lt;400&gt; 46

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Gln | Leu | Leu | Ser | Thr | Gly | Arg | Val | Gln | Gly | Tyr | Glu | Gly | Tyr | Tyr |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Leu | Pro | Val | Glu | Gln | Tyr | Pro | Glu | Leu | Ala | Asp | Ser | Ser | Ser | Asn |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Gln | Phe | Leu | Arg | Gln | Asn | Glu | Met |
|     |     |     | 35  |     |     |     | 40  |     |

<210> 47  
 <211> 43  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP2 (43 a.a)

<400> 47

Gln Leu Leu Ser Thr Gly Arg Val Gln Gly Tyr Glu Gly Tyr Tyr Val  
 1 5 10 15

Leu Pro Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ser Ser Asn Ile  
 20 25 30

Gln Phe Leu Arg Gln Asn Glu Met Gly Lys Arg  
 35 40

<210> 48  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP2 (44 a.a.)

<400> 48

Gln Gln Leu Leu Ser Thr Gly Arg Val Gln Gly Tyr Glu Gly Tyr Tyr  
 1 5 10 15

Val Leu Pro Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ser Ser Asn  
 20 25 30

Ile Gln Phe Leu Arg Gln Asn Glu Met Gly Lys Arg  
 35 40

<210> 49  
 <211> 120  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse TCAP2 (120 n.a.)

<400> 49  
 caactcctga gcacgggacg ggtacaaggt tatgagggct attacgtact tccggtggaa 60  
 cagtaccogg agctggcaga cagtagcagc aacatccagt tottaagaca gaatgagagg 120

<210> 50  
 <211> 123  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse TCAP 2 (123 n.a.)

<400> 50  
 cagcaactcc tgagcacggg acgggtacaa ggttatgagg gctattacgt acttccggtg 60  
 gaacagtacc cggagctggc agacagtagc agcaacatcc agttcttaag acagaatgag 120  
 atg 123

<210> 51  
 <211> 129  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP2 (129 n.a.)

<400> 51  
 caactcctga gcacgggacg ggtacaaggt tatgagggct attacgtact tccggtggaa 60  
 cagtaccggg agctggcaga cagtagcagc aacatccagt tcttaagaca gaatgagatg 120  
 ggaaagagg 129

<210> 52  
 <211> 132  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP2 (132 n.a.)

<400> 52  
 cagcaactcc tgagcacggg acgggtacaa ggttatgagg gctattacgt acttccggtg 60  
 gaacagtacc cggagctggc agacagtagc agcaacatcc agttcttaag acagaatgag 120  
 atgggaaaga gg 132

<210> 53  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mouse TCAP3 (40 a.a.)

<400> 53

Gln Leu Leu Ser Ala Gly Lys Val Gln Gly Tyr Asp Gly Tyr Tyr Val  
1 5 10 15

Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Ile  
20 25 30

Gln Phe Leu Arg Gln Ser Glu Ile  
35 40

<210> 54

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> Mouse TCAP3 (41 a..a)

<400> 54

Arg Gln Leu Leu Ser Ala Gly Lys Val Gln Gly Tyr Asp Gly Tyr Tyr  
1 5 10 15

Val Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn  
20 25 30

Ile Gln Phe Leu Arg Gln Ser Glu Ile  
35 40

<210> 55

<211> 43

<212> PRT

<213> Artificial Sequence

<220>

<223> Mouse preTCAP3 (43 a.a.)

<400> 55

Gln Leu Leu Ser Ala Gly Lys Val Gln Gly Tyr Asp Gly Tyr Tyr Val  
1 5 10 15

Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Ile  
20 25 30

Gln Phe Leu Arg Gln Ser Glu Ile Gly Lys Arg  
           35                          40

<210> 56  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP3 (44 a.a.)

<400> 56

Arg Gln Leu Leu Ser Ala Gly Lys Val Gln Gly Tyr Asp Gly Tyr Tyr  
 1                          5                          10                          15

Val Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn  
                           20                          25                          30

Ile Gln Phe Leu Arg Gln Ser Glu Ile Gly Lys Arg  
           35                          40

<210> 57  
 <211> 120  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse TCAP3 (120 n.a.)

<400> 57  
 cagctgctga gcgctggcaa ggtgcagggc tacgatgggt actacgtact gtcggtggag 60  
 cagtaccccg agctggctga cagtgccaac aacatccagt tcttgcgaca aagtgagatc 120

<210> 58  
 <211> 123  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse TCAP3 (123 n.a.)

<400> 58  
 cggcagctgc tgagcgctgg caaggtgcag ggctacgatg ggtactacgt actgtcgggtg 60  
 gagcagtacc ccgagctggc tgacagtgcc aacaacatcc agttcttgcg acaaagtgag 120  
 atc 123

<210> 59  
 <211> 129  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP3 (129 n.a.)

<400> 59  
 cagctgctga gcgctggcaa ggtgcagggc tacgatgggt actacgtact gtcggtggag 60  
 cagtacccccg agctggctga cagtgccaac aacatccagt tcttgcgaca aagtgagatc 120  
 ggcaagagg 129

<210> 60  
 <211> 132  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP3 (132 n.a.)

<400> 60  
 cggcagctgc tgagcgctgg caaggtgcag ggctacgatg ggtactacgt actgtcggtg 60  
 gagcagtacc ccgagctggc tgacagtgcc aacaacatcc agttcttgcg acaaagtgag 120  
 atcggcaaga gg 132

<210> 61  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mouse TCAP4 (40 a.a.)

<400> 61

Gln Val Leu Asn Thr Gly Arg Val Gln Gly Tyr Asp Gly Phe Phe Val  
 1 5 10 15

Thr Ser Val Glu Gln Tyr Pro Glu Leu Ser Asp Ser Ala Asn Asn Ile  
 20 25 30

His Phe Met Arg Gln Ser Glu Met  
 35 40

<210> 62  
 <211> 41



<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mouse TCAP4 (41 a.a.)

<400> 62

Gln Gln Val Leu Asn Thr Gly Arg Val Gln Gly Tyr Asp Gly Phe Phe  
 1 5 10 15

Val Thr Ser Val Glu Gln Tyr Pro Glu Leu Ser Asp Ser Ala Asn Asn  
 20 25 30

Ile His Phe Met Arg Gln Ser Glu Met  
 35 40

<210> 63  
 <211> 43  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP4 (43 a.a.)

<400> 63

Gln Val Leu Asn Thr Gly Arg Val Gln Gly Tyr Asp Gly Phe Phe Val  
 1 5 10 15

Thr Ser Val Glu Gln Tyr Pro Glu Leu Ser Asp Ser Ala Asn Asn Ile  
 20 25 30

His Phe Met Arg Gln Ser Glu Met Gly Arg Arg  
 35 40

<210> 64  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP4 (44 a.a.)

<400> 64

Gln Gln Val Leu Asn Thr Gly Arg Val Gln Gly Tyr Asp Gly Phe Phe  
 1 5 10 15

Val Thr Ser Val Glu Gln Tyr Pro Glu Leu Ser Asp Ser Ala Asn Asn  
                   20                                  25                                  30

Ile His Phe Met Arg Gln Ser Glu Met Gly Arg Arg  
           35                                  40

<210> 65  
 <211> 120  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse TCAP4 (120 n.a.)

<400> 65  
 caggtgctga acacggggcg ggtgcaaggc tacgacggct tctttgtgac ctcggtcgag 60  
 cagtaccag aactgtcaga cagcgccaac aatatccact tcatgagaca gagcgagatg 120

<210> 66  
 <211> 123  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse TCAP4 (123 n.a.)

<400> 66  
 cagcaggtgc tgaacacggg gcgggtgcaa ggctacgacg gcttctttgt gacctcggtc 60  
 gagcagtacc cagaactgtc agacagcgcc aacaatatcc acttcatgag acagagcgag 120  
 atg 123

<210> 67  
 <211> 129  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP4 (129 n.a.)

<400> 67  
 caggtgctga acacggggcg ggtgcaaggc tacgacggct tctttgtgac ctcggtcgag 60  
 cagtaccag aactgtcaga cagcgccaac aatatccact tcatgagaca gagcgagatg 120  
 ggccgaagg 129

<210> 68  
 <211> 132

<212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Mouse preTCAP4 (132 n.a.)

<400> 68  
 cagcaggtgc tgaacacggg gcgggtgcaa ggctacgacg gcttctttgt gacctcggtc 60  
 gagcagtacc cagaactgtc agacagcgcc aacaatatcc acttcatgag acagagcgag 120  
 atggggccgaa gg 132

<210> 69  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP1 (40 a.a.)

<400> 69  
 Gln Leu Leu Ser Thr Gly Arg Val Gln Gly Tyr Asp Gly Tyr Phe Val  
 1 5 10 15  
 Leu Ser Val Glu Gln Tyr Leu Glu Leu Ser Asp Ser Ala Asn Asn Ile  
 20 25 30  
 His Phe Met Arg Gln Ser Glu Ile  
 35 40

<210> 70  
 <211> 41  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP1 (41 a.a.)

<400> 70  
 Gln Gln Leu Leu Ser Thr Gly Arg Val Gln Gly Tyr Asp Gly Tyr Phe  
 1 5 10 15  
 Val Leu Ser Val Glu Gln Tyr Leu Glu Leu Ser Asp Ser Ala Asn Asn  
 20 25 30  
 Ile His Phe Met Arg Gln Ser Glu Ile  
 35 40

<210> 71  
 <211> 43  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP1 (43 a.a.)

<400> 71

Gln Leu Leu Ser Thr Gly Arg Val Gln Gly Tyr Asp Gly Tyr Phe Val  
 1 5 10 15

Leu Ser Val Glu Gln Tyr Leu Glu Leu Ser Asp Ser Ala Asn Asn Ile  
 20 25 30

His Phe Met Arg Gln Ser Glu Ile Gly Arg Arg  
 35 40

<210> 72  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP1 (44 a.a.)

<400> 72

Gln Gln Leu Leu Ser Thr Gly Arg Val Gln Gly Tyr Asp Gly Tyr Phe  
 1 5 10 15

Val Leu Ser Val Glu Gln Tyr Leu Glu Leu Ser Asp Ser Ala Asn Asn  
 20 25 30

Ile His Phe Met Arg Gln Ser Glu Ile Gly Arg Arg  
 35 40

<210> 73  
 <211> 120  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP1 (120 n.a.)

<400> 73  
 cagcttttga gcactgggcg ggtacaaggt tacgatgggt attttgtttt gtctgttgag

cagtatttag aactttctga cagtgccaat aatattcact ttatgagaca gagcgaaata 120

<210> 74  
 <211> 123  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP1 (123 n.a.)

<400> 74  
 cagcagcttt tgagcactgg gcgggtacaa ggttacgatg ggtattttgt tttgtctgtt 60  
 gagcagtatt tagaactttc tgacagtgcc aataatattc actttatgag acagagcgaa 120  
 ata 123

<210> 75  
 <211> 129  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP1 (129 n.a.)

<400> 75  
 cagcttttga gcactgggcg ggtacaaggt tacgatgggt attttgtttt gtctgttgag 60  
 cagtatttag aactttctga cagtgccaat aatattcact ttatgagaca gagcgaaata 120  
 ggcaggagg 129

<210> 76  
 <211> 132  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP1 (132 n.a.)

<400> 76  
 cagcagcttt tgagcactgg gcgggtacaa ggttacgatg ggtattttgt tttgtctgtt 60  
 gagcagtatt tagaactttc tgacagtgcc aataatattc actttatgag acagagcgaa 120  
 ataggcagga gg 132

<210> 77  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Human TCAP2 (40 a.a.)

&lt;400&gt; 77

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Leu | Leu | Ser | Thr | Gly | Arg | Val | Gln | Gly | Tyr | Glu | Gly | Tyr | Tyr | Val |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Pro | Val | Glu | Gln | Tyr | Pro | Glu | Leu | Ala | Asp | Ser | Ser | Ser | Asn | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Phe | Leu | Arg | Gln | Asn | Glu | Met |
|     |     | 35  |     |     |     | 40  |     |

&lt;210&gt; 78

&lt;211&gt; 41

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Human preTCAP2 (41 a.a.)

&lt;400&gt; 78

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Gln | Leu | Leu | Ser | Thr | Gly | Arg | Val | Gln | Gly | Tyr | Glu | Gly | Tyr | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Leu | Pro | Val | Glu | Gln | Tyr | Pro | Glu | Leu | Ala | Asp | Ser | Ser | Ser | Asn |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Gln | Phe | Leu | Arg | Gln | Asn | Glu | Met |
|     |     | 35  |     |     |     | 40  |     |     |

&lt;210&gt; 79

&lt;211&gt; 43

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Human preTCAP2 (43 a.a.)

&lt;400&gt; 79

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Leu | Leu | Ser | Thr | Gly | Arg | Val | Gln | Gly | Tyr | Glu | Gly | Tyr | Tyr | Val |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Pro | Val | Glu | Gln | Tyr | Pro | Glu | Leu | Ala | Asp | Ser | Ser | Ser | Asn | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

Gln Phe Leu Arg Gln Asn Glu Met Gly Lys Arg  
           35                          40

<210> 80  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP2 (44 a.a.)

<400> 80

Gln Gln Leu Leu Ser Thr Gly Arg Val Gln Gly Tyr Glu Gly Tyr Tyr  
 1                          5                          10                          15

Val Leu Pro Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ser Ser Asn  
           20                          25                          30

Ile Gln Phe Leu Arg Gln Asn Glu Met Gly Lys Arg  
           35                          40

<210> 81  
 <211> 120  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP2 (120 n.a.)

<400> 81  
 cagcttctga gcaccgggcg cgtgcaaggg tacgagggat attacgtgct tcccgtggag 60  
 caatacccag agcttgcaga cagtagcagc aacatccagt ttttaagaca gaatgagatg 120

<210> 82  
 <211> 123  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP2 (123 n.a.)

<400> 82  
 cagcagcttc tgagcaccgg gcgcgtgcaa gggtacgagg gatattacgt gcttcccgtg 60  
 gagcaatacc cagagcttgc agacagtagc agcaacatcc agtttttaag acagaatgag 120  
 atg 123

<210> 83  
 <211> 129  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP2 (129 n.a.)

<400> 83  
 cagcttctga gcaccgggcg cgtgcaaggg tacgagggat attacgtgct tcccgtggag 60  
 caatacccag agcttgcaga cagtagcagc aacatccagt ttttaagaca gaatgagatg 120  
 ggaaagagg 129

<210> 84  
 <211> 132  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP2 (132 n.a.)

<400> 84  
 cagcagcttc tgagcaccgg gcgcgtgcaa gggtagcagg gatattacgt gcttcccgtg 60  
 gagcaatacc cagagcttgc agacagtagc agcaacatcc agtttttaag acagaatgag 120  
 atgggaaaga gg 132

<210> 85  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP3 (40 a.a.)

<400> 85

Gln Leu Leu Ser Ala Gly Lys Val Gln Gly Tyr Asp Gly Tyr Tyr Val  
 1 5 10 15

Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Ile  
 20 25 30

Gln Phe Leu Arg Gln Ser Glu Ile  
 35 40



<210> 86  
 <211> 41  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP3 (41 a.a.)

<400> 86

Arg Gln Leu Leu Ser Ala Gly Lys Val Gln Gly Tyr Asp Gly Tyr Tyr  
 1 5 10 15

Val Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn  
 20 25 30

Ile Gln Phe Leu Arg Gln Ser Glu Ile  
 35 40

<210> 87  
 <211> 43  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP3 (43 a.a.)

<400> 87

Gln Leu Leu Ser Ala Gly Lys Val Gln Gly Tyr Asp Gly Tyr Tyr Val  
 1 5 10 15

Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Ile  
 20 25 30

Gln Phe Leu Arg Gln Ser Glu Ile Gly Arg Arg  
 35 40

<210> 88  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP3 (44 a.a.)

<400> 88

Arg Gln Leu Leu Ser Ala Gly Lys Val Gln Gly Tyr Asp Gly Tyr Tyr  
 1 5 10 15

Val Leu Ser Val Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn  
                   20                  25                  30

Ile Gln Phe Leu Arg Gln Ser Glu Ile Gly Arg Arg  
           35                  40

<210> 89  
 <211> 120  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP3 (120 n.a.)

<400> 89  
 cagctgctga gcgccggcaa ggtgcagggc tacgacgggt actacgtact ctcggtggag 60  
 cagtacccccg agctggccga cagcgccaac aacatccagt tcctgcggca gagcgagatc 120

<210> 90  
 <211> 123  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP3 (123 n.a.)

<400> 90  
 cggcagctgc tgagcgccgg caaggtgcag ggctacgacg ggtactacgt actctcggtg 60  
 gagcagtacc ccgagctggc cgacagcgcc aacaacatcc agttcctgcg gcagagcgag 120  
 atc 123

<210> 91  
 <211> 129  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP (129 n.a.)

<400> 91  
 cagctgctga gcgccggcaa ggtgcagggc tacgacgggt actacgtact ctcggtggag 60  
 cagtacccccg agctggccga cagcgccaac aacatccagt tcctgcggca gagcgagatc 120  
 ggcaggagg 129

<210> 92  
 <211> 132  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP3 (132 n.a.)

<400> 92  
 cggcagctgc tgagcgccgg caaggtgcag ggctacgacg ggtactacgt actctcggtg 60  
 gagcagtacc ccgagctggc cgacagcgcc aacaacatcc agttcctgcg gcagagcgag 120  
 atcggcagga gg 132

<210> 93  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP4 (40 a.a.)

<400> 93  
 Gln Val Leu Ser Thr Gly Arg Val Gln Gly Tyr Asp Gly Phe Phe Val  
 1 5 10 15  
 Ile Ser Val Glu Gln Tyr Pro Glu Leu Ser Asp Ser Ala Asn Asn Ile  
 20 25 30  
 His Phe Met Arg Gln Ser Glu Met  
 35 40

<210> 94  
 <211> 41  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP4 (41 a.a.)

<400> 94  
 Gln Gln Val Leu Ser Thr Gly Arg Val Gln Gly Tyr Asp Gly Phe Phe  
 1 5 10 15  
 Val Ile Ser Val Glu Gln Tyr Pro Glu Leu Ser Asp Ser Ala Asn Asn  
 20 25 30

Ile His Phe Met Arg Gln Ser Glu Met  
           35                          40

<210> 95  
 <211> 43  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP4 (43 a..a)

<400> 95

Gln Val Leu Ser Thr Gly Arg Val Gln Gly Tyr Asp Gly Phe Phe Val  
 1                          5                          10                          15

Ile Ser Val Glu Gln Tyr Pro Glu Leu Ser Asp Ser Ala Asn Asn Ile  
                           20                          25                          30

His Phe Met Arg Gln Ser Glu Met Gly Arg Arg  
           35                          40

<210> 96  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP4 (44 a.a.)

<400> 96

Gln Gln Val Leu Ser Thr Gly Arg Val Gln Gly Tyr Asp Gly Phe Phe  
 1                          5                          10                          15

Val Ile Ser Val Glu Gln Tyr Pro Glu Leu Ser Asp Ser Ala Asn Asn  
                           20                          25                          30

Ile His Phe Met Arg Gln Ser Glu Met Gly Arg Arg  
           35                          40

<210> 97  
 <211> 120  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP4 (120 n.a.)

<400> 97  
 cagggtgctga gcacagggcg ggtgcaaggc tacgacggct ttttcgtgat ctctgtcgag 60  
 cagtacccag aactgtcaga cagcgccaac aacatccact tcatgagaca gagcgagatg 120

<210> 98  
 <211> 123  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human TCAP4 (123 n.a.)

<400> 98  
 cagcaggtgc tgagcacagg gcgggtgcaa ggctacgacg gctttttcgt gatctctgtc 60  
 gagcagtacc cagaactgtc agacagcgcc aacaacatcc acttcatgag acagagcgag 120  
 atg 123

<210> 99  
 <211> 129  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP4 (129 n.a.)

<400> 99  
 cagggtgctga gcacagggcg ggtgcaaggc tacgacggct ttttcgtgat ctctgtcgag 60  
 cagtacccag aactgtcaga cagcgccaac aacatccact tcatgagaca gagcgagatg 120  
 ggccggagg 129

<210> 100  
 <211> 132  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Human preTCAP4 (132 n.a.)

<400> 100  
 cagcaggtgc tgagcacagg gcgggtgcaa ggctacgacg gctttttcgt gatctctgtc 60  
 gagcagtacc cagaactgtc agacagcgcc aacaacatcc acttcatgag acagagcgag 120  
 atgggcccga gg 132

<210> 101  
 <211> 41

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> G. gallus TCAP-1

<400> 101

Gln Gln Leu Leu Asn Thr Gly Arg Val Gln Gly Tyr Asp Gly Tyr Phe  
 1 5 10 15

Val Leu Ser Val Glu Gln Tyr Leu Glu Leu Ser Asp Ser Ala Asn Asn  
 20 25 30

Ile His Phe Met Arg Gln Ser Glu Ile  
 35 40

<210> 102  
 <211> 41  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Zebrafish TCAP-4

<400> 102

Gln Gln Leu Leu Ser Ser Gly Arg Val Gln Gly Tyr Glu Gly Phe Tyr  
 1 5 10 15

Ile Val Ser Val Asp Gln Phe Pro Glu Leu Thr Asp Asn Ile Asn Asn  
 20 25 30

Val His Phe Trp Arg Gln Thr Glu Met  
 35 40

<210> 103  
 <211> 37  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> D. melanogaster Ten-m gene product

<400> 103

Glu Leu Val Gln His Gly Asp Val Asp Gly Trp Asn Gly Asp Ile His  
 1 5 10 15

47/77

Ser Ile His Lys Tyr Pro Gln Leu Ala Asp Pro Gly Asn Val Ala Phe  
20 25 30

Gln Arg Asp Ala Lys  
35

<210> 104  
<211> 41  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Human CRF TCAP like region

<400> 104

Ser Glu Glu Pro Pro Ile Ser Leu Asp Leu Thr Phe His Leu Leu Arg  
1 5 10 15

Glu Val Leu Glu Met Ala Arg Ala Glu Gln Leu Ala Gln Gln Ala His  
20 25 30

Ser Asn Arg Lys Leu Met Glu Ile Ile  
35 40

<210> 105  
<211> 40  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Human urocortin TCAP-like region

<400> 105

Asp Asn Pro Ser Leu Ser Ile Asp Leu Thr Phe His Leu Leu Arg Thr  
1 5 10 15

Leu Leu Glu Leu Ala Arg Thr Gln Ser Gln Arg Glu Arg Ala Glu Gln  
20 25 30

Asn Arg Ile Ile Phe Asp Ser Val  
35 40

<210> 106  
<211> 38  
<212> PRT  
<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Human urocortin 2 TCAP-like region

&lt;400&gt; 106

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Val | Leu | Ser | Leu | Asp | Val | Pro | Ile | Gly | Leu | Leu | Gln | Ile | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Gln | Ala | Arg | Ala | Arg | Ala | Ala | Arg | Glu | Gln | Ala | Thr | Thr | Asn | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| Arg | Ile | Leu | Ala | Arg | Val |
|     |     |     |     |     | 35  |

&lt;210&gt; 107

&lt;211&gt; 38

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Human urocortin 3 TCAP-like region

&lt;400&gt; 107

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Thr | Leu | Ser | Leu | Asp | Val | Pro | Thr | Asn | Ile | Met | Asn | Leu | Leu | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ile | Ala | Lys | Ala | Lys | Asn | Leu | Arg | Ala | Gln | Ala | Ala | Ala | Asn | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| His | Leu | Met | Ala | Gln | Ile |
|     |     |     |     |     | 35  |

&lt;210&gt; 108

&lt;211&gt; 46

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; L. migratoria DP

&lt;400&gt; 108

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Met | Gly | Pro | Ser | Leu | Ser | Ile | Val | Asn | Pro | Met | Asp | Val | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Gln | Arg | Leu | Leu | Leu | Glu | Ile | Ala | Arg | Arg | Arg | Leu | Arg | Asp | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |



Glu Glu Gln Ile Lys Ala Asn Lys Asp Phe Leu Gln Gln Ile  
                   35                                  40                                  45

<210> 109  
 <211> 46  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> A. domesticus DP

<400> 109

Thr Gly Ala Gln Ser Leu Ser Ile Val Ala Pro Leu Asp Val Leu Arg  
 1                                  5                                  10                                  15

Gln Arg Leu Met Asn Glu Leu Asn Arg Arg Arg Met Arg Glu Leu Gln  
                   20                                  25                                  30

Gly Ser Arg Ile Gln Gln Asn Arg Gln Leu Leu Thr Ser Ile  
                   35                                  40                                  45

<210> 110  
 <211> 39  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> T. molitor DP

<400> 110

Ser Pro Thr Ile Ser Ile Thr Ala Pro Ile Asp Val Leu Arg Lys Thr  
 1                                  5                                  10                                  15

Trp Glu Gln Glu Arg Ala Arg Lys Gln Met Val Ala Gln Asn Asn Arg  
                   20                                  25                                  30

Glu Phe Leu Asn Ser Leu Asn  
                   35

<210> 111  
 <211> 41  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> M. sexta DP-1

<400> 111

Arg Met Pro Ser Leu Ser Ile Asp Leu Pro Met Ser Val Leu Arg Gln  
1 5 10 15

Lys Leu Ser Leu Glu Lys Glu Arg Lys Val His Ala Leu Arg Ala Ala  
20 25 30

Ala Asn Arg Asn Phe Leu Asn Asp Ile  
35 40

<210> 112

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> M. sexta DP-II

<400> 112

Ser Leu Ser Val Asn Pro Ala Val Asp Ile Leu Gln His Arg Tyr Met  
1 5 10 15

Glu Lys Val Ala Gln Asn Asn Arg Asn Phe Leu Asn Arg Val  
20 25 30

<210> 113

<211> 45

<212> PRT

<213> Artificial Sequence

<220>

<223> P. Americana

<400> 113

Thr Gly Ser Gly Pro Ser Leu Ser Ile Val Asn Pro Leu Asp Val Leu  
1 5 10 15

Arg Gln Arg Leu Leu Leu Glu Ile Ala Arg Arg Arg Met Arg Gln Ser  
20 25 30

Gln Asp Gln Ile Gln Asn Arg Glu Ile Leu Gln Thr Ile  
35 40 45

<210> 114  
 <211> 41  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> O. keta CRP

<400> 114

Ser Asp Asp Pro Pro Ile Ser Leu Asp Leu Thr Phe His Met Leu Arg  
 1 5 10 15

Gln Met Asn Glu Met Ser Arg Ala Glu Gln Leu Gln Gln Gln Ala His  
 20 25 30

Ser Asn Arg Lys Met Met Glu Ile Phe  
 35 40

<210> 115  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> R. norvegicus

<400> 115

Asp Asp Pro Pro Leu Ser Ile Asp Leu Thr Phe His Leu Leu Arg Thr  
 1 5 10 15

Leu Leu Glu Leu Ala Arg Thr Gln Ser Gln Arg Glu Arg Ala Glu Gln  
 20 25 30

Asn Arg Ile Ile Phe Asp Ser Val  
 35 40

<210> 116  
 <211> 37  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> P. sauvageii

<400> 116

Gln Gly Pro Pro Ile Ser Ile Asp Leu Ser Leu Glu Leu Leu Arg Lys  
 1 5 10 15

Met Ile Glu Ile Glu Lys Gln Glu Lys Glu Lys Gln Gln Ala Ala Asn  
                   20                  25                  30

Asn Arg Leu Leu Leu  
                   35

<210> 117  
 <211> 41  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> C. carpio US

<400> 117

Asn Asp Asp Pro Pro Ile Ser Ile Asp Leu Thr Phe His Leu Leu Arg  
 1                  5                  10                  15

Asn Met Ile Glu Met Ala Arg Asn Glu Asn Gln Arg Glu Gln Ala Gly  
                   20                  25                  30

Leu Asn Arg Lys Tyr Leu Asp Glu Val  
                   35                  40

<210> 118  
 <211> 38  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> M. Musculus UCN2

<400> 118

Val Ile Leu Ser Leu Asp Val Pro Ile Gly Leu Leu Arg Ile Leu Leu  
 1                  5                  10                  15

Glu Gln Ala Arg Tyr Lys Ala Ala Arg Asn Gln Ala Ala Thr Asn Ala  
                   20                  25                  30

Gln Ile Leu Ala His Val  
                   35

<210> 119  
 <211> 38

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> R. dano UCN2

<400> 119

Leu Thr Leu Ser Leu Asp Val Pro Thr Asn Ile Met Asn Val Leu Phe  
 1 5 10 15

Asp Val Ala Lys Ala Lys Asn Leu Arg Ala Lys Ala Ala Glu Asn Ala  
 20 25 30

Arg Leu Leu Ala His Ile  
 35

<210> 120  
 <211> 305  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Hamster 305bp urocortin cDNA probe examples "cloning mRNA"

<400> 120  
 attcaccgcc gctcgggata tgagcctgca ggcgagcggc agcgacggga agaccttccg 60  
 ctgtccatcg acctcacatt ccacctgcta cggaccctgc tggagatggc ccggacacag 120  
 agccaacgcg agcgagcaga gcagaaccga atcataactca acgcggtggg caagtgatcg 180  
 gcccggtgtg ggacccccaaa aggctcgacc ctttccccta cctaccccg ggcctgaagtc 240  
 acgcgaccga agtcggctta gtcccgcggt gcagcgctc ccagagttac cctgaacaat 300  
 cccgc 305

<210> 121  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> TCAP1 fwd primer

<400> 121

acgtcagtgt tgatgggagg acta 24

<210> 122

<211> 27  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> TCAP1 rvs primer  
  
 <400> 122  
 cctcctgcct atttcactct gtctcat

27

<210> 123  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> TCAP2 Fwd primer

<400> 123  
 tcgagggcaa ggacacacac tactt

25

<210> 124  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> TCAP2 rvs primer

<400> 124  
 aagaactgga tgttgctgct actgtc

26

<210> 125  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> TCAP3 fwd primer

<400> 125  
 caacaacgcc ttctacctgg agaac

25

<210> 126  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> TCAP3 rvs primer

<400> 126

tggttggtggc actgtcagcc a 21

<210> 127  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> TCAP4 fwd primer

<400> 127  
 tttgcctcca gtggttccat ctt 23

<210> 128  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> TCAP4 rvs primer

<400> 128  
 tggatattgt tggcgctgtc tgac 24

<210> 129  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Conserved motif between CRF and TCAP I/L S X X (X)-L/V at amino terminus

<220>  
 <221> MISC\_FEATURE  
 <222> (1) .. (1)  
 <223> X=I or L

<220>  
 <221> MISC\_FEATURE  
 <222> (3) .. (3)  
 <223> X=T or A

<220>  
 <221> MISC\_FEATURE  
 <222> (4) .. (4)  
 <223> X=L, I or G

<220>  
 <221> MISC\_FEATURE  
 <222> (5) .. (5)  
 <223> X=D, R or K

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(6)  
 <223> X=L or V

<400> 129

Xaa Ser Xaa Xaa Xaa Xaa  
 1 5

<210> 130  
 <211> 4  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Conserved motif between CRF and TCAP - In middle L/V-L/I-X-V/aliphatic residue

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(1)  
 <223> X=V or L

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(2)  
 <223> X=L, I or F

<220>  
 <221> MISC\_FEATURE  
 <222> (3)..(3)  
 <223> X=E, N, S or P

<220>  
 <221> MISC\_FEATURE  
 <222> (4)..(4)  
 <223> X=M, L Q, I or V

<400> 130

Xaa Xaa Xaa Xaa  
 1

<210> 131  
 <211> 4  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Conserved motif between CRF and TCAP N/I/A-H/basic residue -I/L/F/-aliphatic at carboxy terminus

<220>  
 <221> MISC\_FEATURE



<222> (2)..(2)  
 <223> X=R, A or I

<220>  
 <221> MISC\_FEATURE  
 <222> (3)..(3)  
 <223> X=H or basic residues, K, I, R or Q

<220>  
 <221> MISC\_FEATURE  
 <222> (4)..(4)  
 <223> X=I, L or F

<400> 131

Asn Xaa Xaa Xaa  
 1

<210> 132  
 <211> 8964  
 <212> DNA  
 <213> Mus musculus

<220>  
 <221> exon  
 <222> (50)..(8197)

<400> 132  
 aagttctaag aagccggacc gatgtgcaca gagaaggaat gaaggaagt atg gat gtg 58  
 Met Asp Val  
 1

aag gaa cgc agg cct tac tgc tcc ttg acc aag agc aga cgg gaa aag 106  
 Lys Glu Arg Arg Pro Tyr Cys Ser Leu Thr Lys Ser Arg Arg Glu Lys  
 5 10 15

gaa agg cgc tat aca aat tcg tcc gcg gac aat gag gag tgt agg gtc 154  
 Glu Arg Arg Tyr Thr Asn Ser Ser Ala Asp Asn Glu Glu Cys Arg Val  
 20 25 30 35

ccc acg cag aag tcc tat agt tcc agt gaa acc ttg aaa gct ttc gat 202  
 Pro Thr Gln Lys Ser Tyr Ser Ser Ser Glu Thr Leu Lys Ala Phe Asp  
 40 45 50

cat gat tat tca cgg ctg ctt tat gga aac aga gta aag gat ttg gtc 250  
 His Asp Tyr Ser Arg Leu Leu Tyr Gly Asn Arg Val Lys Asp Leu Val  
 55 60 65

cac aga gaa gcc gac gag tat act aga caa gga cag aat ttt acc cta 298  
 His Arg Glu Ala Asp Glu Tyr Thr Arg Gln Gly Gln Asn Phe Thr Leu  
 70 75 80

agg cag tta gga gtg tgt gaa tcc gca act cga aga gga gtg gca ttc 346  
 Arg Gln Leu Gly Val Cys Glu Ser Ala Thr Arg Arg Gly Val Ala Phe

| 85                                                              | 90  | 95  |      |
|-----------------------------------------------------------------|-----|-----|------|
| tgt gcg gaa atg ggg ctc cct cac aga ggt tac tcc atc agt gca ggg |     |     | 394  |
| Cys Ala Glu Met Gly Leu Pro His Arg Gly Tyr Ser Ile Ser Ala Gly |     |     |      |
| 100                                                             | 105 | 110 | 115  |
| tca gat gcg gat acg gaa aac gaa gca gtg atg tcc cct gag cat gcc |     |     | 442  |
| Ser Asp Ala Asp Thr Glu Asn Glu Ala Val Met Ser Pro Glu His Ala |     |     |      |
|                                                                 | 120 | 125 | 130  |
| atg aga ctt tgg ggc agg ggg gtc aaa tcg ggc cgc agt tcc tgc ctg |     |     | 490  |
| Met Arg Leu Trp Gly Arg Gly Val Lys Ser Gly Arg Ser Ser Cys Leu |     |     |      |
|                                                                 | 135 | 140 | 145  |
| tca agc cgg tcc aac tcc gcc ctc acc ctg aca gac acg gag cac gag |     |     | 538  |
| Ser Ser Arg Ser Asn Ser Ala Leu Thr Leu Thr Asp Thr Glu His Glu |     |     |      |
|                                                                 | 150 | 155 | 160  |
| aac agg tcg gac agt gag agc gag caa cct tca aac aac cca ggg caa |     |     | 586  |
| Asn Arg Ser Asp Ser Glu Ser Glu Gln Pro Ser Asn Asn Pro Gly Gln |     |     |      |
|                                                                 | 165 | 170 | 175  |
| ccc acc ctg cag cct ttg ccg cca tcc cac aag cag cac ccg gcg cag |     |     | 634  |
| Pro Thr Leu Gln Pro Leu Pro Pro Ser His Lys Gln His Pro Ala Gln |     |     |      |
| 180                                                             | 185 | 190 | 195  |
| cat cac ccg tcc atc act tcc ctc aat aga aac tcc ctg acc aat aga |     |     | 682  |
| His His Pro Ser Ile Thr Ser Leu Asn Arg Asn Ser Leu Thr Asn Arg |     |     |      |
|                                                                 | 200 | 205 | 210  |
| agg aac cag agt ccg gcc ccg ccg gct gct ttg ccc gcc gag ctg caa |     |     | 730  |
| Arg Asn Gln Ser Pro Ala Pro Pro Ala Ala Leu Pro Ala Glu Leu Gln |     |     |      |
|                                                                 | 215 | 220 | 225  |
| acc aca ccc gag tcc gtc cag ctg cag gac agc tgg gtc ctt ggc agt |     |     | 778  |
| Thr Thr Pro Glu Ser Val Gln Leu Gln Asp Ser Trp Val Leu Gly Ser |     |     |      |
|                                                                 | 230 | 235 | 240  |
| aat gta cca ctg gaa agc agg cat ttc cta ttc aaa aca ggg aca ggg |     |     | 826  |
| Asn Val Pro Leu Glu Ser Arg His Phe Leu Phe Lys Thr Gly Thr Gly |     |     |      |
|                                                                 | 245 | 250 | 255  |
| acg acg cca ctg ttc agt acg gca acc ccg gga tac aca atg gca tct |     |     | 874  |
| Thr Thr Pro Leu Phe Ser Thr Ala Thr Pro Gly Tyr Thr Met Ala Ser |     |     |      |
| 260                                                             | 265 | 270 | 275  |
| ggc tct gtt tat tct ccg cct acc cgg cca ctt cct aga aac acc cta |     |     | 922  |
| Gly Ser Val Tyr Ser Pro Pro Thr Arg Pro Leu Pro Arg Asn Thr Leu |     |     |      |
|                                                                 | 280 | 285 | 290  |
| tca aga agt gct ttt aaa ttc aag aag tct tca aag tac tgc agc tgg |     |     | 970  |
| Ser Arg Ser Ala Phe Lys Phe Lys Lys Ser Ser Lys Tyr Cys Ser Trp |     |     |      |
|                                                                 | 295 | 300 | 305  |
| agg tgc acc gca ctg tgt gct gta ggg gtc tca gtg ctc ctg gcc att |     |     | 1018 |
| Arg Cys Thr Ala Leu Cys Ala Val Gly Val Ser Val Leu Leu Ala Ile |     |     |      |

| 310                                                                                                                                                   | 315 | 320 |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|------|
| ctc ctc tcc tat ttt ata gca atg cat cta ttt ggc ctc aac tgg cac<br>Leu Leu Ser Tyr Phe Ile Ala Met His Leu Phe Gly Leu Asn Trp His<br>325 330 335     |     |     | 1066 |
| tta cag cag acg gaa aat gac aca ttc gag aat gga aaa gtg aat tct<br>Leu Gln Gln Thr Glu Asn Asp Thr Phe Glu Asn Gly Lys Val Asn Ser<br>340 345 350 355 |     |     | 1114 |
| gac acc gtg cca aca aac act gta tcg tta cct tct ggc gac aat gga<br>Asp Thr Val Pro Thr Asn Thr Val Ser Leu Pro Ser Gly Asp Asn Gly<br>360 365 370     |     |     | 1162 |
| aaa tta ggt gga ttt aca cat gaa aat aac acc ata gat tcc gga gaa<br>Lys Leu Gly Gly Phe Thr His Glu Asn Asn Thr Ile Asp Ser Gly Glu<br>375 380 385     |     |     | 1210 |
| ctt gat att ggc cgg aga gca att caa gag gtt ccc ccc ggg atc ttc<br>Leu Asp Ile Gly Arg Arg Ala Ile Gln Glu Val Pro Pro Gly Ile Phe<br>390 395 400     |     |     | 1258 |
| tgg aga tcg cag ctc ttt att gat cag cca cag ttt ctt aag ttc aac<br>Trp Arg Ser Gln Leu Phe Ile Asp Gln Pro Gln Phe Leu Lys Phe Asn<br>405 410 415     |     |     | 1306 |
| atc tct ctt cag aag gat gca ttg atc gga gtg tac ggc cgg aag ggc<br>Ile Ser Leu Gln Lys Asp Ala Leu Ile Gly Val Tyr Gly Arg Lys Gly<br>420 425 430 435 |     |     | 1354 |
| tta ccg cct tcc cat act cag tac gac ttt gtg gaa cta ctg gat ggt<br>Leu Pro Pro Ser His Thr Gln Tyr Asp Phe Val Glu Leu Leu Asp Gly<br>440 445 450     |     |     | 1402 |
| agc agg tta att gcg aga gag cag cgg aac ctg gtg gag tcc gaa aga<br>Ser Arg Leu Ile Ala Arg Glu Gln Arg Asn Leu Val Glu Ser Glu Arg<br>455 460 465     |     |     | 1450 |
| gcc ggg cgg cag gcg aga tct gtc agc ctg cac gaa gct ggc ttc atc<br>Ala Gly Arg Gln Ala Arg Ser Val Ser Leu His Glu Ala Gly Phe Ile<br>470 475 480     |     |     | 1498 |
| cag tac ttg gat tct gga atc tgg cat ctg gct ttt tat aac gac ggg<br>Gln Tyr Leu Asp Ser Gly Ile Trp His Leu Ala Phe Tyr Asn Asp Gly<br>485 490 495     |     |     | 1546 |
| aaa aac cca gag cag gtc tcc ttt aac acg atc gtt ata gag tct gtg<br>Lys Asn Pro Glu Gln Val Ser Phe Asn Thr Ile Val Ile Glu Ser Val<br>500 505 510 515 |     |     | 1594 |
| gtg gaa tgc ccc cga aat tgc cat gga aat gga gag tgt gtt tct gga<br>Val Glu Cys Pro Arg Asn Cys His Gly Asn Gly Glu Cys Val Ser Gly<br>520 525 530     |     |     | 1642 |
| act tgc cat tgt ttc ccc ggg ttt cta ggt ccg gat tgt tca aga gca<br>Thr Cys His Cys Phe Pro Gly Phe Leu Gly Pro Asp Cys Ser Arg Ala                    |     |     | 1690 |

| 535                                                                                                                                                   | 540 | 545 |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|------|
| gcc tgt ccg gtg ctc tgt agt ggc aac ggg caa tac tcc aag ggc cgc<br>Ala Cys Pro Val Leu Cys Ser Gly Asn Gly Gln Tyr Ser Lys Gly Arg<br>550 555 560     |     |     | 1738 |
| tgc ctg tgc ttc agt ggc tgg aag ggc acc gag tgt gac gtg ccg acg<br>Cys Leu Cys Phe Ser Gly Trp Lys Gly Thr Glu Cys Asp Val Pro Thr<br>565 570 575     |     |     | 1786 |
| acc cag tgc att gac ccg cag tgc ggg ggt cgt ggg att tgc atc atg<br>Thr Gln Cys Ile Asp Pro Gln Cys Gly Gly Arg Gly Ile Cys Ile Met<br>580 585 590 595 |     |     | 1834 |
| ggc tct tgc gct tgt aac tcg gga tac aaa gga gaa aac tgt gag gaa<br>Gly Ser Cys Ala Cys Asn Ser Gly Tyr Lys Gly Glu Asn Cys Glu Glu<br>600 605 610     |     |     | 1882 |
| gcg gac tgt cta gac cct gga tgt tct aat cac ggg gtg tgt atc cat<br>Ala Asp Cys Leu Asp Pro Gly Cys Ser Asn His Gly Val Cys Ile His<br>615 620 625     |     |     | 1930 |
| ggg gaa tgt cac tgc aat cca ggc tgg ggt ggc agc aac tgt gaa ata<br>Gly Glu Cys His Cys Asn Pro Gly Trp Gly Gly Ser Asn Cys Glu Ile<br>630 635 640     |     |     | 1978 |
| ctg aag act atg tgt gca gac cag tgc tca ggc cac ggg act tac ctt<br>Leu Lys Thr Met Cys Ala Asp Gln Cys Ser Gly His Gly Thr Tyr Leu<br>645 650 655     |     |     | 2026 |
| caa gaa agc ggc tcc tgc act tgc gac cca aat tgg act ggc ccc gac<br>Gln Glu Ser Gly Ser Cys Thr Cys Asp Pro Asn Trp Thr Gly Pro Asp<br>660 665 670 675 |     |     | 2074 |
| tgc tca aat gaa ata tgt tca gtg gac tgc ggc tca cac ggc gtc tgc<br>Cys Ser Asn Glu Ile Cys Ser Val Asp Cys Gly Ser His Gly Val Cys<br>680 685 690     |     |     | 2122 |
| atg ggg ggc tcc tgt cgc tgt gaa gaa ggc tgg acc ggc ccg gcg tgt<br>Met Gly Gly Ser Cys Arg Cys Glu Glu Gly Trp Thr Gly Pro Ala Cys<br>695 700 705     |     |     | 2170 |
| aat cag aga gct tgc cac cct cgc tgt gct gag cac ggg acg tgc aag<br>Asn Gln Arg Ala Cys His Pro Arg Cys Ala Glu His Gly Thr Cys Lys<br>710 715 720     |     |     | 2218 |
| gac ggc aag tgc gag tgc agc caa gga tgg aac gga gag cac tgc aca<br>Asp Gly Lys Cys Glu Cys Ser Gln Gly Trp Asn Gly Glu His Cys Thr<br>725 730 735     |     |     | 2266 |
| att gct cac tat ttg gat aag ata gtt aaa gag ggt tgc ccc ggc ttg<br>Ile Ala His Tyr Leu Asp Lys Ile Val Lys Glu Gly Cys Pro Gly Leu<br>740 745 750 755 |     |     | 2314 |
| tgc aac agc aat ggg aga tgc aca ctg gac caa aac ggc tgg cac tgc<br>Cys Asn Ser Asn Gly Arg Cys Thr Leu Asp Gln Asn Gly Trp His Cys                    |     |     | 2362 |

| 760 |     |     |     |     | 765 |     |     |     |     | 770 |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| gtt | tgc | cag | cca | ggg | tgg | aga | gga | gca | ggc | tgt | gac | gta | gcc | atg | gag | 2410 |
| Val | Cys | Gln | Pro | Gly | Trp | Arg | Gly | Ala | Gly | Cys | Asp | Val | Ala | Met | Glu |      |
| 775 |     |     |     |     | 780 |     |     |     |     | 785 |     |     |     |     |     |      |
| acc | ctc | tgt | aca | gac | agc | aaa | gac | aac | gaa | gga | gac | gga | ctc | att | gac | 2458 |
| Thr | Leu | Cys | Thr | Asp | Ser | Lys | Asp | Asn | Glu | Gly | Asp | Gly | Leu | Ile | Asp |      |
| 790 |     |     |     |     | 795 |     |     |     |     | 800 |     |     |     |     |     |      |
| tgc | atg | gat | cct | gat | tgc | tgc | ctc | cag | agc | tcc | tgc | caa | aac | cag | ccc | 2506 |
| Cys | Met | Asp | Pro | Asp | Cys | Cys | Leu | Gln | Ser | Ser | Cys | Gln | Asn | Gln | Pro |      |
| 805 |     |     |     |     | 810 |     |     |     |     | 815 |     |     |     |     |     |      |
| tac | tgt | cgt | ggc | ttg | cct | gat | cct | cag | gat | atc | att | agc | caa | agc | ctt | 2554 |
| Tyr | Cys | Arg | Gly | Leu | Pro | Asp | Pro | Gln | Asp | Ile | Ile | Ser | Gln | Ser | Leu |      |
| 820 |     |     |     |     | 825 |     |     |     |     | 830 |     |     |     |     | 835 |      |
| cag | aca | cca | tct | cag | caa | gct | gcc | aag | tcc | ttc | tat | gac | cga | atc | agt | 2602 |
| Gln | Thr | Pro | Ser | Gln | Gln | Ala | Ala | Lys | Ser | Phe | Tyr | Asp | Arg | Ile | Ser |      |
| 840 |     |     |     |     | 845 |     |     |     |     | 850 |     |     |     |     |     |      |
| ttc | ctg | att | gga | tcg | gat | agc | acc | cac | gtg | ctc | cct | gga | gaa | agt | ccg | 2650 |
| Phe | Leu | Ile | Gly | Ser | Asp | Ser | Thr | His | Val | Leu | Pro | Gly | Glu | Ser | Pro |      |
| 855 |     |     |     |     | 860 |     |     |     |     | 865 |     |     |     |     |     |      |
| ttc | aat | aag | agt | ctt | gcg | tcc | gtc | atc | aga | ggc | caa | gta | cta | aca | gct | 2698 |
| Phe | Asn | Lys | Ser | Leu | Ala | Ser | Val | Ile | Arg | Gly | Gln | Val | Leu | Thr | Ala |      |
| 870 |     |     |     |     | 875 |     |     |     |     | 880 |     |     |     |     |     |      |
| gat | gga | acc | cca | ctt | att | ggc | gtc | aac | gtg | tcg | ttt | tta | cac | tac | tcg | 2746 |
| Asp | Gly | Thr | Pro | Leu | Ile | Gly | Val | Asn | Val | Ser | Phe | Leu | His | Tyr | Ser |      |
| 885 |     |     |     |     | 890 |     |     |     |     | 895 |     |     |     |     |     |      |
| gaa | tat | gga | tat | acc | att | acc | cgc | cag | gat | gga | atg | ttt | gac | ttg | gtg | 2794 |
| Glu | Tyr | Gly | Tyr | Thr | Ile | Thr | Arg | Gln | Asp | Gly | Met | Phe | Asp | Leu | Val |      |
| 900 |     |     |     |     | 905 |     |     |     |     | 910 |     |     |     |     | 915 |      |
| gca | aat | ggt | ggc | gct | tct | ctg | act | ttg | gta | ttt | gag | cgt | tcc | cca | ttc | 2842 |
| Ala | Asn | Gly | Gly | Ala | Ser | Leu | Thr | Leu | Val | Phe | Glu | Arg | Ser | Pro | Phe |      |
| 920 |     |     |     |     | 925 |     |     |     |     | 930 |     |     |     |     |     |      |
| ctc | act | cag | tac | cac | act | gtg | tgg | att | ccc | tgg | aat | gtc | ttt | tat | gtg | 2890 |
| Leu | Thr | Gln | Tyr | His | Thr | Val | Trp | Ile | Pro | Trp | Asn | Val | Phe | Tyr | Val |      |
| 935 |     |     |     |     | 940 |     |     |     |     | 945 |     |     |     |     |     |      |
| atg | gat | acc | ctt | gtc | atg | aag | aaa | gag | gag | aac | gac | att | ccc | agc | tgt | 2938 |
| Met | Asp | Thr | Leu | Val | Met | Lys | Lys | Glu | Glu | Asn | Asp | Ile | Pro | Ser | Cys |      |
| 950 |     |     |     |     | 955 |     |     |     |     | 960 |     |     |     |     |     |      |
| gac | ctc | agt | ggc | ttt | gtg | agg | cca | agt | ccc | atc | att | gtg | tct | tca | ccg | 2986 |
| Asp | Leu | Ser | Gly | Phe | Val | Arg | Pro | Ser | Pro | Ile | Ile | Val | Ser | Ser | Pro |      |
| 965 |     |     |     |     | 970 |     |     |     |     | 975 |     |     |     |     |     |      |
| tta | tcc | acc | ttc | ttc | agg | tct | tcc | cct | gag | gac | agc | ccc | atc | atc | ccc | 3034 |
| Leu | Ser | Thr | Phe | Phe | Arg | Ser | Ser | Pro | Glu | Asp | Ser | Pro | Ile | Ile | Pro |      |

| 980                                                | 985                                                | 990                                                        | 995  |
|----------------------------------------------------|----------------------------------------------------|------------------------------------------------------------|------|
| gag aca cag gtc ctg<br>Glu Thr Gln Val Leu<br>1000 | cat gaa gaa acc<br>His Glu Glu Thr<br>1005         | aca att cca gga aca gat<br>Thr Ile Pro Gly Thr Asp<br>1010 | 3079 |
| ttg aaa ctt tcc tac<br>Leu Lys Leu Ser Tyr<br>1015 | ctg agt tcc aga gcg<br>Leu Ser Ser Arg Ala<br>1020 | gca ggg tac aag tca<br>Ala Gly Tyr Lys Ser<br>1025         | 3124 |
| gtt ctt aag att acc<br>Val Leu Lys Ile Thr<br>1030 | atg acc cag gcc gtc<br>Met Thr Gln Ala Val<br>1035 | ata ccg ttt aac ctc<br>Ile Pro Phe Asn Leu<br>1040         | 3169 |
| atg aag gtc cat ctg<br>Met Lys Val His Leu<br>1045 | atg gtg gcc gtg gtt<br>Met Val Ala Val Val<br>1050 | ggg aga ctc ttc cag<br>Gly Arg Leu Phe Gln<br>1055         | 3214 |
| aag tgg ttt cct gcc<br>Lys Trp Phe Pro Ala<br>1060 | tcg cca aac ttg gcc<br>Ser Pro Asn Leu Ala<br>1065 | tac acg ttc atc tgg<br>Tyr Thr Phe Ile Trp<br>1070         | 3259 |
| gat aag acg gac gca<br>Asp Lys Thr Asp Ala<br>1075 | tat aat cag aaa gtc<br>Tyr Asn Gln Lys Val<br>1080 | tac ggc ttg tca gag<br>Tyr Gly Leu Ser Glu<br>1085         | 3304 |
| gca gtt gtg tcc gtc<br>Ala Val Val Ser Val<br>1090 | gga tac gag tac gag<br>Gly Tyr Glu Tyr Glu<br>1095 | tcg tgc ttg gac ctg<br>Ser Cys Leu Asp Leu<br>1100         | 3349 |
| act ctc tgg gaa aag<br>Thr Leu Trp Glu Lys<br>1105 | agg act gcc gtt ttg<br>Arg Thr Ala Val Leu<br>1110 | caa ggc tat gag ttg<br>Gln Gly Tyr Glu Leu<br>1115         | 3394 |
| gat gct tcg aac atg<br>Asp Ala Ser Asn Met<br>1120 | ggc ggc tgg acg ttg<br>Gly Gly Trp Thr Leu<br>1125 | gac aag cac cat gta<br>Asp Lys His His Val<br>1130         | 3439 |
| ctg gac gtt cag aac<br>Leu Asp Val Gln Asn<br>1135 | ggc ata cta tac aaa<br>Gly Ile Leu Tyr Lys<br>1140 | gga aat gga gaa aat<br>Gly Asn Gly Glu Asn<br>1145         | 3484 |
| cag ttc atc tct cag<br>Gln Phe Ile Ser Gln<br>1150 | cag cct ccg gtg gtc<br>Gln Pro Pro Val Val<br>1155 | agc agc atc atg ggt<br>Ser Ser Ile Met Gly<br>1160         | 3529 |
| aat ggt cgg agg cgt<br>Asn Gly Arg Arg Arg<br>1165 | agc atc tca tgc cca<br>Ser Ile Ser Cys Pro<br>1170 | agt tgc aat ggt caa<br>Ser Cys Asn Gly Gln<br>1175         | 3574 |
| gct gac ggg aac aaa<br>Ala Asp Gly Asn Lys<br>1180 | ctc ctg gca ccc gtg<br>Leu Leu Ala Pro Val<br>1185 | gcg ctt gcc tgt ggg<br>Ala Leu Ala Cys Gly<br>1190         | 3619 |
| atc gac ggc agt cta<br>Ile Asp Gly Ser Leu<br>1195 | tac gta ggg gat ttc<br>Tyr Val Gly Asp Phe<br>1200 | aat tac gtc cgg cgg<br>Asn Tyr Val Arg Arg<br>1205         | 3664 |

| 1195 |     |     |     |      | 1200 |     |     |     |      | 1205 |     |     |     |      |      |
|------|-----|-----|-----|------|------|-----|-----|-----|------|------|-----|-----|-----|------|------|
| ata  | ttc | ccg | tct | ggg  | aat  | gtg | aca | agt | gtt  | tta  | gaa | cta | aga | aat  | 3709 |
| Ile  | Phe | Pro | Ser | Gly  | Asn  | Val | Thr | Ser | Val  | Leu  | Glu | Leu | Arg | Asn  |      |
|      |     |     |     | 1210 |      |     |     |     | 1215 |      |     |     |     | 1220 |      |
| aaa  | gat | ttt | aga | cat  | agt  | agc | aac | cca | gct  | cac  | aga | tac | tac | ctg  | 3754 |
| Lys  | Asp | Phe | Arg | His  | Ser  | Ser | Asn | Pro | Ala  | His  | Arg | Tyr | Tyr | Leu  |      |
|      |     |     |     | 1225 |      |     |     |     | 1230 |      |     |     |     | 1235 |      |
| gct  | acg | gac | cca | gtc  | acc  | gga | gat | ttg | tac  | gtc  | tct | gat | act | aac  | 3799 |
| Ala  | Thr | Asp | Pro | Val  | Thr  | Gly | Asp | Leu | Tyr  | Val  | Ser | Asp | Thr | Asn  |      |
|      |     |     |     | 1240 |      |     |     |     | 1245 |      |     |     |     | 1250 |      |
| acc  | cgc | aga | atc | tat  | cgg  | ccg | aaa | tca | ctc  | acg  | gga | gcc | aaa | gac  | 3844 |
| Thr  | Arg | Arg | Ile | Tyr  | Arg  | Pro | Lys | Ser | Leu  | Thr  | Gly | Ala | Lys | Asp  |      |
|      |     |     |     | 1255 |      |     |     |     | 1260 |      |     |     |     | 1265 |      |
| ctg  | act | aaa | aac | gct  | gaa  | gtg | gtg | gca | ggg  | acc  | ggg | gaa | cag | tgc  | 3889 |
| Leu  | Thr | Lys | Asn | Ala  | Glu  | Val | Val | Ala | Gly  | Thr  | Gly | Glu | Gln | Cys  |      |
|      |     |     |     | 1270 |      |     |     |     | 1275 |      |     |     |     | 1280 |      |
| ctt  | ccc | ttt | gac | gag  | gcc  | agg | tgt | ggg | gat  | gga  | ggc | aag | gct | gtg  | 3934 |
| Leu  | Pro | Phe | Asp | Glu  | Ala  | Arg | Cys | Gly | Asp  | Gly  | Gly | Lys | Ala | Val  |      |
|      |     |     |     | 1285 |      |     |     |     | 1290 |      |     |     |     | 1295 |      |
| gaa  | gca | acg | ctc | atg  | agt  | ccc | aaa | gga | atg  | gca  | atc | gat | aag | aac  | 3979 |
| Glu  | Ala | Thr | Leu | Met  | Ser  | Pro | Lys | Gly | Met  | Ala  | Ile | Asp | Lys | Asn  |      |
|      |     |     |     | 1300 |      |     |     |     | 1305 |      |     |     |     | 1310 |      |
| gga  | ctg | atc | tac | ttt  | gtt  | gat | gga | acc | atg  | atc  | aga | aag | gtt | gat  | 4024 |
| Gly  | Leu | Ile | Tyr | Phe  | Val  | Asp | Gly | Thr | Met  | Ile  | Arg | Lys | Val | Asp  |      |
|      |     |     |     | 1315 |      |     |     |     | 1320 |      |     |     |     | 1325 |      |
| caa  | aat | gga | atc | ata  | tca  | act | ctc | ctg | ggc  | tcc  | aac | gac | ctc | acg  | 4069 |
| Gln  | Asn | Gly | Ile | Ile  | Ser  | Thr | Leu | Leu | Gly  | Ser  | Asn | Asp | Leu | Thr  |      |
|      |     |     |     | 1330 |      |     |     |     | 1335 |      |     |     |     | 1340 |      |
| tca  | gct | cga | cct | tta  | acc  | tgt | gat | act | agc  | atg  | cat | atc | agc | cag  | 4114 |
| Ser  | Ala | Arg | Pro | Leu  | Thr  | Cys | Asp | Thr | Ser  | Met  | His | Ile | Ser | Gln  |      |
|      |     |     |     | 1345 |      |     |     |     | 1350 |      |     |     |     | 1355 |      |
| gtg  | cgt | ctg | gaa | tgg  | ccc  | act | gac | ctc | gcg  | atc  | aac | ccc | atg | gat  | 4159 |
| Val  | Arg | Leu | Glu | Trp  | Pro  | Thr | Asp | Leu | Ala  | Ile  | Asn | Pro | Met | Asp  |      |
|      |     |     |     | 1360 |      |     |     |     | 1365 |      |     |     |     | 1370 |      |
| aac  | tcc | atc | tac | gtc  | ctg  | gat | aat | aac | gta  | gtt  | tta | cag | atc | act  | 4204 |
| Asn  | Ser | Ile | Tyr | Val  | Leu  | Asp | Asn | Asn | Val  | Val  | Leu | Gln | Ile | Thr  |      |
|      |     |     |     | 1375 |      |     |     |     | 1380 |      |     |     |     | 1385 |      |
| gaa  | aac | cgt | cag | gtc  | cgc  | atc | gct | gcc | ggg  | cgg  | ccc | atg | cac | tgt  | 4249 |
| Glu  | Asn | Arg | Gln | Val  | Arg  | Ile | Ala | Ala | Gly  | Arg  | Pro | Met | His | Cys  |      |
|      |     |     |     | 1390 |      |     |     |     | 1395 |      |     |     |     | 1400 |      |
| cag  | gtc | cct | gga | gtg  | gaa  | tac | ccg | gtg | ggg  | aag  | cac | gcg | gtt | cag  | 4294 |
| Gln  | Val | Pro | Gly | Val  | Glu  | Tyr | Pro | Val | Gly  | Lys  | His | Ala | Val | Gln  |      |

| 1405 |     |     |     |     | 1410 |     |     |     |     | 1415 |     |     |     |     |      |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|
| acc  | acc | ctg | gag | tca | gcc  | acg | gcc | att | gct | gtg  | tcc | tac | agc | ggg | 4339 |
| Thr  | Thr | Leu | Glu | Ser | Ala  | Thr | Ala | Ile | Ala | Val  | Ser | Tyr | Ser | Gly |      |
| 1420 |     |     |     |     | 1425 |     |     |     |     | 1430 |     |     |     |     |      |
| gtc  | ctt | tac | atc | acg | gaa  | act | gat | gag | aag | aag  | atc | aac | cga | ata | 4384 |
| Val  | Leu | Tyr | Ile | Thr | Glu  | Thr | Asp | Glu | Lys | Lys  | Ile | Asn | Arg | Ile |      |
| 1435 |     |     |     |     | 1440 |     |     |     |     | 1445 |     |     |     |     |      |
| agg  | cag | gtc | acg | aca | gac  | ggg | gag | atc | tcc | tta  | gtg | gct | ggg | ata | 4429 |
| Arg  | Gln | Val | Thr | Thr | Asp  | Gly | Glu | Ile | Ser | Leu  | Val | Ala | Gly | Ile |      |
| 1450 |     |     |     |     | 1455 |     |     |     |     | 1460 |     |     |     |     |      |
| cct  | tcg | gaa | tgt | gac | tgc  | aag | aac | gac | gcc | aac  | tgt | gac | tgc | tac | 4474 |
| Pro  | Ser | Glu | Cys | Asp | Cys  | Lys | Asn | Asp | Ala | Asn  | Cys | Asp | Cys | Tyr |      |
| 1465 |     |     |     |     | 1470 |     |     |     |     | 1475 |     |     |     |     |      |
| caa  | agc | gga | gac | ggc | tac  | gcc | aaa | gat | gcc | aaa  | ctc | aat | gcg | ccg | 4519 |
| Gln  | Ser | Gly | Asp | Gly | Tyr  | Ala | Lys | Asp | Ala | Lys  | Leu | Asn | Ala | Pro |      |
| 1480 |     |     |     |     | 1485 |     |     |     |     | 1490 |     |     |     |     |      |
| tcc  | tcc | ctg | gcc | gcc | tcg  | cca | gat | ggc | act | ctg  | tac | att | gca | gat | 4564 |
| Ser  | Ser | Leu | Ala | Ala | Ser  | Pro | Asp | Gly | Thr | Leu  | Tyr | Ile | Ala | Asp |      |
| 1495 |     |     |     |     | 1500 |     |     |     |     | 1505 |     |     |     |     |      |
| ctg  | gga | aat | atc | agg | atc  | cgg | gcc | gtt | tcg | aag  | aat | aaa | cct | tta | 4609 |
| Leu  | Gly | Asn | Ile | Arg | Ile  | Arg | Ala | Val | Ser | Lys  | Asn | Lys | Pro | Leu |      |
| 1510 |     |     |     |     | 1515 |     |     |     |     | 1520 |     |     |     |     |      |
| ctg  | aac | tca | atg | aac | ttt  | tac | gaa | gtt | gcc | tct  | cca | act | gat | caa | 4654 |
| Leu  | Asn | Ser | Met | Asn | Phe  | Tyr | Glu | Val | Ala | Ser  | Pro | Thr | Asp | Gln |      |
| 1525 |     |     |     |     | 1530 |     |     |     |     | 1535 |     |     |     |     |      |
| gag  | ctc | tac | atc | ttt | gac  | atc | aac | ggt | act | cac  | cag | tac | acc | gtg | 4699 |
| Glu  | Leu | Tyr | Ile | Phe | Asp  | Ile | Asn | Gly | Thr | His  | Gln | Tyr | Thr | Val |      |
| 1540 |     |     |     |     | 1545 |     |     |     |     | 1550 |     |     |     |     |      |
| agc  | ctg | gtc | acg | ggt | gac  | tac | cta | tat | aat | ttt  | agt | tac | agc | aat | 4744 |
| Ser  | Leu | Val | Thr | Gly | Asp  | Tyr | Leu | Tyr | Asn | Phe  | Ser | Tyr | Ser | Asn |      |
| 1555 |     |     |     |     | 1560 |     |     |     |     | 1565 |     |     |     |     |      |
| gac  | aat | gac | gtc | acc | gct  | gta | act | gac | agc | aat  | ggc | aac | acc | ctc | 4789 |
| Asp  | Asn | Asp | Val | Thr | Ala  | Val | Thr | Asp | Ser | Asn  | Gly | Asn | Thr | Leu |      |
| 1570 |     |     |     |     | 1575 |     |     |     |     | 1580 |     |     |     |     |      |
| cga  | atc | cga | agg | gat | ccg  | aat | cgg | atg | ccg | gtg  | cgg | gtg | gtg | tct | 4834 |
| Arg  | Ile | Arg | Arg | Asp | Pro  | Asn | Arg | Met | Pro | Val  | Arg | Val | Val | Ser |      |
| 1585 |     |     |     |     | 1590 |     |     |     |     | 1595 |     |     |     |     |      |
| cct  | gat | aac | cag | gtg | ata  | tgg | ttg | acc | ata | ggc  | acc | aac | ggg | tgt | 4879 |
| Pro  | Asp | Asn | Gln | Val | Ile  | Trp | Leu | Thr | Ile | Gly  | Thr | Asn | Gly | Cys |      |
| 1600 |     |     |     |     | 1605 |     |     |     |     | 1610 |     |     |     |     |      |
| ctg  | aaa | agc | atg | acc | gct  | cag | ggc | ctg | gaa | ctg  | gtt | ttg | ttt | act | 4924 |
| Leu  | Lys | Ser | Met | Thr | Ala  | Gln | Gly | Leu | Glu | Leu  | Val | Leu | Phe | Thr |      |



| 1615                | 1620                | 1625                |      |
|---------------------|---------------------|---------------------|------|
| tac cat ggc aac agt | ggg ctt tta gcc acc | aaa agt gac gaa act | 4969 |
| Tyr His Gly Asn Ser | Gly Leu Leu Ala Thr | Lys Ser Asp Glu Thr |      |
| 1630                | 1635                | 1640                |      |
| gga tgg aca aca ttt | ttt gac tat gac agt | gaa ggt cgc ctg acg | 5014 |
| Gly Trp Thr Thr Phe | Phe Asp Tyr Asp Ser | Glu Gly Arg Leu Thr |      |
| 1645                | 1650                | 1655                |      |
| aat gtt acc ttc ccc | act ggg gtg gtt aca | aac ctg cac ggg gac | 5059 |
| Asn Val Thr Phe Pro | Thr Gly Val Val Thr | Asn Leu His Gly Asp |      |
| 1660                | 1665                | 1670                |      |
| atg gac aag gct atc | acg gtg gac atc gag | tca tcc agc aga gag | 5104 |
| Met Asp Lys Ala Ile | Thr Val Asp Ile Glu | Ser Ser Ser Arg Glu |      |
| 1675                | 1680                | 1685                |      |
| gaa gat gtc agc atc | act tcg aac ttg tcc | tcc atc gat tcc ttc | 5149 |
| Glu Asp Val Ser Ile | Thr Ser Asn Leu Ser | Ser Ile Asp Ser Phe |      |
| 1690                | 1695                | 1700                |      |
| tac acc atg gtc caa | gac cag tta aga aac | agt tac cag att ggg | 5194 |
| Tyr Thr Met Val Gln | Asp Gln Leu Arg Asn | Ser Tyr Gln Ile Gly |      |
| 1705                | 1710                | 1715                |      |
| tat gat ggc tcc ctt | aga atc ttc tat gcc | agt ggt ctg gac tct | 5239 |
| Tyr Asp Gly Ser Leu | Arg Ile Phe Tyr Ala | Ser Gly Leu Asp Ser |      |
| 1720                | 1725                | 1730                |      |
| cac tac cag aca gag | ccc cac gtt ctg gct | ggc acg gcg aat ccc | 5284 |
| His Tyr Gln Thr Glu | Pro His Val Leu Ala | Gly Thr Ala Asn Pro |      |
| 1735                | 1740                | 1745                |      |
| aca gta gcc aaa aga | aac atg act ctt ccc | ggg gag aac ggg cag | 5329 |
| Thr Val Ala Lys Arg | Asn Met Thr Leu Pro | Gly Glu Asn Gly Gln |      |
| 1750                | 1755                | 1760                |      |
| aat ctg gtg gag tgg | aga ttc cga aaa gaa | caa gcc cag ggc aaa | 5374 |
| Asn Leu Val Glu Trp | Arg Phe Arg Lys Glu | Gln Ala Gln Gly Lys |      |
| 1765                | 1770                | 1775                |      |
| gtc aac gta ttc ggc | cgg aag ctc agg gtc | aat ggg cgc aac cta | 5419 |
| Val Asn Val Phe Gly | Arg Lys Leu Arg Val | Asn Gly Arg Asn Leu |      |
| 1780                | 1785                | 1790                |      |
| ctc tca gtg gac ttt | gat cgg acc acc aag | acg gaa aag atc tat | 5464 |
| Leu Ser Val Asp Phe | Asp Arg Thr Thr Lys | Thr Glu Lys Ile Tyr |      |
| 1795                | 1800                | 1805                |      |
| gat gac cac cgg aaa | ttt ctc ctg agg atc | gct tac gac acg tcg | 5509 |
| Asp Asp His Arg Lys | Phe Leu Leu Arg Ile | Ala Tyr Asp Thr Ser |      |
| 1810                | 1815                | 1820                |      |
| ggg cac ccg act ctc | tgg ctg ccg agt agc | aag cta atg gca gtg | 5554 |
| Gly His Pro Thr Leu | Trp Leu Pro Ser Ser | Lys Leu Met Ala Val |      |

| 1825 |     |     |     |     | 1830 |     |     |     |     | 1835 |     |     |     |     |      |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|
| aac  | gtc | acc | tac | tca | tcc  | acc | ggg | caa | att | gcc  | agc | atc | cag | aga | 5599 |
| Asn  | Val | Thr | Tyr | Ser | Ser  | Thr | Gly | Gln | Ile | Ala  | Ser | Ile | Gln | Arg |      |
| 1840 |     |     |     |     | 1845 |     |     |     |     | 1850 |     |     |     |     |      |
| ggg  | acc | acg | agc | gaa | aag  | gtg | gac | tat | gac | agc  | cag | ggg | agg | atc | 5644 |
| Gly  | Thr | Thr | Ser | Glu | Lys  | Val | Asp | Tyr | Asp | Ser  | Gln | Gly | Arg | Ile |      |
| 1855 |     |     |     |     | 1860 |     |     |     |     | 1865 |     |     |     |     |      |
| gta  | tct | cgg | gtc | ttt | gcc  | gat | ggg | aaa | aca | tgg  | agt | tac | acg | tac | 5689 |
| Val  | Ser | Arg | Val | Phe | Ala  | Asp | Gly | Lys | Thr | Trp  | Ser | Tyr | Thr | Tyr |      |
| 1870 |     |     |     |     | 1875 |     |     |     |     | 1880 |     |     |     |     |      |
| ttg  | gaa | aag | tcc | atg | gtt  | ctt | ctg | ctc | cat | agc  | cag | cgg | cag | tac | 5734 |
| Leu  | Glu | Lys | Ser | Met | Val  | Leu | Leu | Leu | His | Ser  | Gln | Arg | Gln | Tyr |      |
| 1885 |     |     |     |     | 1890 |     |     |     |     | 1895 |     |     |     |     |      |
| atc  | ttc | gaa | tac | gac | atg  | tgg | gac | cgc | ctg | tcc  | gcc | atc | acc | atg | 5779 |
| Ile  | Phe | Glu | Tyr | Asp | Met  | Trp | Asp | Arg | Leu | Ser  | Ala | Ile | Thr | Met |      |
| 1900 |     |     |     |     | 1905 |     |     |     |     | 1910 |     |     |     |     |      |
| ccc  | agt | gtg | gct | cgc | cac  | acc | atg | cag | acc | atc  | cgg | tcc | att | ggc | 5824 |
| Pro  | Ser | Val | Ala | Arg | His  | Thr | Met | Gln | Thr | Ile  | Arg | Ser | Ile | Gly |      |
| 1915 |     |     |     |     | 1920 |     |     |     |     | 1925 |     |     |     |     |      |
| tac  | tac | cgc | aac | atc | tac  | aat | ccc | cca | gaa | agc  | aat | gcc | tct | atc | 5869 |
| Tyr  | Tyr | Arg | Asn | Ile | Tyr  | Asn | Pro | Pro | Glu | Ser  | Asn | Ala | Ser | Ile |      |
| 1930 |     |     |     |     | 1935 |     |     |     |     | 1940 |     |     |     |     |      |
| atc  | acc | gac | tac | aac | gag  | gaa | ggg | ctg | ctt | ctg  | caa | aca | gct | ttc | 5914 |
| Ile  | Thr | Asp | Tyr | Asn | Glu  | Glu | Gly | Leu | Leu | Leu  | Gln | Thr | Ala | Phe |      |
| 1945 |     |     |     |     | 1950 |     |     |     |     | 1955 |     |     |     |     |      |
| ctg  | gga | acg | agt | cgg | agg  | gtc | tta | ttc | aag | tat  | aga | agg | cag | acc | 5959 |
| Leu  | Gly | Thr | Ser | Arg | Arg  | Val | Leu | Phe | Lys | Tyr  | Arg | Arg | Gln | Thr |      |
| 1960 |     |     |     |     | 1965 |     |     |     |     | 1970 |     |     |     |     |      |
| agg  | cta | tca | gaa | att | tta  | tac | gac | agc | aca | aga  | gtc | agt | ttt | acc | 6004 |
| Arg  | Leu | Ser | Glu | Ile | Leu  | Tyr | Asp | Ser | Thr | Arg  | Val | Ser | Phe | Thr |      |
| 1975 |     |     |     |     | 1980 |     |     |     |     | 1985 |     |     |     |     |      |
| tac  | gac | gaa | aca | gcg | gga  | gtc | ctg | aaa | aca | gta  | aac | ctt | cag | agt | 6049 |
| Tyr  | Asp | Glu | Thr | Ala | Gly  | Val | Leu | Lys | Thr | Val  | Asn | Leu | Gln | Ser |      |
| 1990 |     |     |     |     | 1995 |     |     |     |     | 2000 |     |     |     |     |      |
| gat  | ggg | ttt | att | tgc | acc  | att | aga | tac | agg | caa  | att | ggg | ccc | ctg | 6094 |
| Asp  | Gly | Phe | Ile | Cys | Thr  | Ile | Arg | Tyr | Arg | Gln  | Ile | Gly | Pro | Leu |      |
| 2005 |     |     |     |     | 2010 |     |     |     |     | 2015 |     |     |     |     |      |
| att  | gac | aga | cag | att | ttc  | cgc | ttc | agc | gag | gat  | gga | atg | gta | aat | 6139 |
| Ile  | Asp | Arg | Gln | Ile | Phe  | Arg | Phe | Ser | Glu | Asp  | Gly | Met | Val | Asn |      |
| 2020 |     |     |     |     | 2025 |     |     |     |     | 2030 |     |     |     |     |      |
| gcg  | aga | ttt | gac | tat | agc  | tac | gac | aac | agc | ttt  | cga | gtg | acc | agc | 6184 |
| Ala  | Arg | Phe | Asp | Tyr | Ser  | Tyr | Asp | Asn | Ser | Phe  | Arg | Val | Thr | Ser |      |

| 2035 |     |     |     |     | 2040 |     |     |     |     | 2045 |     |     |     |     |      |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|
| atg  | cag | ggt | gtc | atc | aat  | gaa | aca | cca | ctg | ccc  | att | gat | cta | tac | 6229 |
| Met  | Gln | Gly | Val | Ile | Asn  | Glu | Thr | Pro | Leu | Pro  | Ile | Asp | Leu | Tyr |      |
| 2050 |     |     |     |     | 2055 |     |     |     |     | 2060 |     |     |     |     |      |
| cag  | ttt | gat | gac | atc | tct  | ggc | aaa | gtc | gag | cag  | ttt | gga | aaa | ttc | 6274 |
| Gln  | Phe | Asp | Asp | Ile | Ser  | Gly | Lys | Val | Glu | Gln  | Phe | Gly | Lys | Phe |      |
| 2065 |     |     |     |     | 2070 |     |     |     |     | 2075 |     |     |     |     |      |
| gga  | gtg | ata | tac | tac | gac  | atc | aac | caa | atc | att  | tcc | acg | gcc | gtg | 6319 |
| Gly  | Val | Ile | Tyr | Tyr | Asp  | Ile | Asn | Gln | Ile | Ile  | Ser | Thr | Ala | Val |      |
| 2080 |     |     |     |     | 2085 |     |     |     |     | 2090 |     |     |     |     |      |
| atg  | act | tat | aca | aag | cac  | ttt | gat | gct | cat | ggg  | cgc | atc | aag | gag | 6364 |
| Met  | Thr | Tyr | Thr | Lys | His  | Phe | Asp | Ala | His | Gly  | Arg | Ile | Lys | Glu |      |
| 2095 |     |     |     |     | 2100 |     |     |     |     | 2105 |     |     |     |     |      |
| atc  | caa | tat | gag | ata | ttt  | agg | tca | ctc | atg | tac  | tgg | att | aca | att | 6409 |
| Ile  | Gln | Tyr | Glu | Ile | Phe  | Arg | Ser | Leu | Met | Tyr  | Trp | Ile | Thr | Ile |      |
| 2110 |     |     |     |     | 2115 |     |     |     |     | 2120 |     |     |     |     |      |
| caa  | tat | gat | aat | atg | ggc  | cgg | gta | acc | aag | aga  | gag | att | aaa | att | 6454 |
| Gln  | Tyr | Asp | Asn | Met | Gly  | Arg | Val | Thr | Lys | Arg  | Glu | Ile | Lys | Ile |      |
| 2125 |     |     |     |     | 2130 |     |     |     |     | 2135 |     |     |     |     |      |
| ggg  | cct | ttt | gcc | aac | act  | acc | aaa | tac | gcg | tac  | gag | tac | gac | gtc | 6499 |
| Gly  | Pro | Phe | Ala | Asn | Thr  | Thr | Lys | Tyr | Ala | Tyr  | Glu | Tyr | Asp | Val |      |
| 2140 |     |     |     |     | 2145 |     |     |     |     | 2150 |     |     |     |     |      |
| gat  | gga | cag | ctc | caa | aca  | gtt | tac | cta | aac | gaa  | aag | atc | atg | tgg | 6544 |
| Asp  | Gly | Gln | Leu | Gln | Thr  | Val | Tyr | Leu | Asn | Glu  | Lys | Ile | Met | Trp |      |
| 2155 |     |     |     |     | 2160 |     |     |     |     | 2165 |     |     |     |     |      |
| cgg  | tac | aac | tac | gac | cta  | aat | gga | aac | ctc | cac  | ttg | ctc | aac | ccc | 6589 |
| Arg  | Tyr | Asn | Tyr | Asp | Leu  | Asn | Gly | Asn | Leu | His  | Leu | Leu | Asn | Pro |      |
| 2170 |     |     |     |     | 2175 |     |     |     |     | 2180 |     |     |     |     |      |
| agc  | agc | agc | gcc | cgc | ctg  | acc | cct | ctg | cgc | tat  | gac | ctg | cgc | gac | 6634 |
| Ser  | Ser | Ser | Ala | Arg | Leu  | Thr | Pro | Leu | Arg | Tyr  | Asp | Leu | Arg | Asp |      |
| 2185 |     |     |     |     | 2190 |     |     |     |     | 2195 |     |     |     |     |      |
| aga  | atc | acc | cgc | ctg | ggc  | gat | gtt | cag | tac | cgg  | ctg | gat | gaa | gat | 6679 |
| Arg  | Ile | Thr | Arg | Leu | Gly  | Asp | Val | Gln | Tyr | Arg  | Leu | Asp | Glu | Asp |      |
| 2200 |     |     |     |     | 2205 |     |     |     |     | 2210 |     |     |     |     |      |
| ggt  | ttc | ctg | cgt | cag | agg  | ggc | act | gaa | att | ttt  | gaa | tac | agc | tcc | 6724 |
| Gly  | Phe | Leu | Arg | Gln | Arg  | Gly | Thr | Glu | Ile | Phe  | Glu | Tyr | Ser | Ser |      |
| 2215 |     |     |     |     | 2220 |     |     |     |     | 2225 |     |     |     |     |      |
| aaa  | ggg | ctt | ctg | act | cga  | gtc | tac | agt | aaa | ggc  | agt | ggc | tgg | aca | 6769 |
| Lys  | Gly | Leu | Leu | Thr | Arg  | Val | Tyr | Ser | Lys | Gly  | Ser | Gly | Trp | Thr |      |
| 2230 |     |     |     |     | 2235 |     |     |     |     | 2240 |     |     |     |     |      |
| gtg  | atc | tat | cgg | tac | gac  | ggc | ctg | gga | aga | cgt  | gtt | tct | agc | aaa | 6814 |
| Val  | Ile | Tyr | Arg | Tyr | Asp  | Gly | Leu | Gly | Arg | Arg  | Val | Ser | Ser | Lys |      |

| 2245 |     |     |     |      | 2250 |     |     |     |      | 2255 |     |     |     |      |      |
|------|-----|-----|-----|------|------|-----|-----|-----|------|------|-----|-----|-----|------|------|
| acc  | agc | ctg | gga | cag  | cac  | ctt | cag | ttt | ttc  | tac  | gcc | gac | ctg | aca  | 6859 |
| Thr  | Ser | Leu | Gly | Gln  | His  | Leu | Gln | Phe | Phe  | Tyr  | Ala | Asp | Leu | Thr  |      |
|      |     |     |     | 2260 |      |     |     |     | 2265 |      |     |     |     | 2270 |      |
| tac  | ccc | acg | aga | att  | act  | cac | gtc | tac | aac  | cat  | tcc | agt | tca | gaa  | 6904 |
| Tyr  | Pro | Thr | Arg | Ile  | Thr  | His | Val | Tyr | Asn  | His  | Ser | Ser | Ser | Glu  |      |
|      |     |     |     | 2275 |      |     |     |     | 2280 |      |     |     |     | 2285 |      |
| atc  | acc | tcc | ctg | tac  | tat  | gac | ctc | caa | gga  | cat  | ctc | ttc | gcc | atg  | 6949 |
| Ile  | Thr | Ser | Leu | Tyr  | Tyr  | Asp | Leu | Gln | Gly  | His  | Leu | Phe | Ala | Met  |      |
|      |     |     |     | 2290 |      |     |     |     | 2295 |      |     |     |     | 2300 |      |
| gag  | atc | agc | agt | ggg  | gat  | gag | ttc | tac | atc  | gcc  | tcg | gac | aac | acg  | 6994 |
| Glu  | Ile | Ser | Ser | Gly  | Asp  | Glu | Phe | Tyr | Ile  | Ala  | Ser | Asp | Asn | Thr  |      |
|      |     |     |     | 2305 |      |     |     |     | 2310 |      |     |     |     | 2315 |      |
| ggg  | aca | ccg | ctg | gct  | gtt  | ttc | agc | agc | aac  | ggg  | ctc | atg | ctg | aaa  | 7039 |
| Gly  | Thr | Pro | Leu | Ala  | Val  | Phe | Ser | Ser | Asn  | Gly  | Leu | Met | Leu | Lys  |      |
|      |     |     |     | 2320 |      |     |     |     | 2325 |      |     |     |     | 2330 |      |
| cag  | acc | cag | tac | act  | gcc  | tat | ggt | gag | atc  | tac  | ttt | gac | tcc | aac  | 7084 |
| Gln  | Thr | Gln | Tyr | Thr  | Ala  | Tyr | Gly | Glu | Ile  | Tyr  | Phe | Asp | Ser | Asn  |      |
|      |     |     |     | 2335 |      |     |     |     | 2340 |      |     |     |     | 2345 |      |
| gtc  | gac | ttt | cag | ctg  | gta  | att | gga | ttc | cac  | ggg  | ggc | ttg | tat | gac  | 7129 |
| Val  | Asp | Phe | Gln | Leu  | Val  | Ile | Gly | Phe | His  | Gly  | Gly | Leu | Tyr | Asp  |      |
|      |     |     |     | 2350 |      |     |     |     | 2355 |      |     |     |     | 2360 |      |
| ccg  | ctc | acc | aaa | cta  | atc  | cac | ttt | gga | gaa  | aga  | gat | tat | gac | att  | 7174 |
| Pro  | Leu | Thr | Lys | Leu  | Ile  | His | Phe | Gly | Glu  | Arg  | Asp | Tyr | Asp | Ile  |      |
|      |     |     |     | 2365 |      |     |     |     | 2370 |      |     |     |     | 2375 |      |
| ttg  | gcg | gga | aga | tgg  | acc  | aca | ccg | gac | att  | gaa  | atc | tgg | aaa | agg  | 7219 |
| Leu  | Ala | Gly | Arg | Trp  | Thr  | Thr | Pro | Asp | Ile  | Glu  | Ile | Trp | Lys | Arg  |      |
|      |     |     |     | 2380 |      |     |     |     | 2385 |      |     |     |     | 2390 |      |
| atc  | gga | aag | gac | cct  | gct  | cct | ttt | aac | ctg  | tat  | atg | ttt | cgg | aat  | 7264 |
| Ile  | Gly | Lys | Asp | Pro  | Ala  | Pro | Phe | Asn | Leu  | Tyr  | Met | Phe | Arg | Asn  |      |
|      |     |     |     | 2395 |      |     |     |     | 2400 |      |     |     |     | 2405 |      |
| aac  | aac | ccc | gcg | agc  | aaa  | atc | cat | gat | gtg  | aaa  | gat | tac | atc | acg  | 7309 |
| Asn  | Asn | Pro | Ala | Ser  | Lys  | Ile | His | Asp | Val  | Lys  | Asp | Tyr | Ile | Thr  |      |
|      |     |     |     | 2410 |      |     |     |     | 2415 |      |     |     |     | 2420 |      |
| gat  | gtt | aac | agc | tgg  | ctg  | gtg | acg | ttt | ggc  | ttc  | cat | ctg | cac | aat  | 7354 |
| Asp  | Val | Asn | Ser | Trp  | Leu  | Val | Thr | Phe | Gly  | Phe  | His | Leu | His | Asn  |      |
|      |     |     |     | 2425 |      |     |     |     | 2430 |      |     |     |     | 2435 |      |
| gct  | att | cct | gga | ttc  | cct  | gtt | ccc | aaa | ttt  | gat  | tta | act | gag | cct  | 7399 |
| Ala  | Ile | Pro | Gly | Phe  | Pro  | Val | Pro | Lys | Phe  | Asp  | Leu | Thr | Glu | Pro  |      |
|      |     |     |     | 2440 |      |     |     |     | 2445 |      |     |     |     | 2450 |      |
| tcc  | tat | gag | ctt | gtg  | aag  | agt | caa | cag | tgg  | gaa  | gat | gtg | ccg | ccc  | 7444 |
| Ser  | Tyr | Glu | Leu | Val  | Lys  | Ser | Gln | Gln | Trp  | Glu  | Asp | Val | Pro | Pro  |      |

| 2455 |     |     |     |     | 2460 |     |     |     |     | 2465 |     |     |     |     |      |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|
| atc  | ttt | gga | gtt | cag | cag  | caa | gtg | gca | agg | caa  | gcc | aag | gcc | ttc | 7489 |
| Ile  | Phe | Gly | Val | Gln | Gln  | Gln | Val | Ala | Arg | Gln  | Ala | Lys | Ala | Phe |      |
| 2470 |     |     |     |     | 2475 |     |     |     |     | 2480 |     |     |     |     |      |
| ttg  | tcc | ctg | ggg | aag | atg  | gcc | gag | gtg | cag | gtg  | agc | cga | cgc | aaa | 7534 |
| Leu  | Ser | Leu | Gly | Lys | Met  | Ala | Glu | Val | Gln | Val  | Ser | Arg | Arg | Lys |      |
| 2485 |     |     |     |     | 2490 |     |     |     |     | 2495 |     |     |     |     |      |
| gct  | ggc | gcc | gag | cag | tcg  | tgg | ctg | tgg | ttc | gcc  | acg | gtc | aag | tcg | 7579 |
| Ala  | Gly | Ala | Glu | Gln | Ser  | Trp | Leu | Trp | Phe | Ala  | Thr | Val | Lys | Ser |      |
| 2500 |     |     |     |     | 2505 |     |     |     |     | 2510 |     |     |     |     |      |
| ctc  | atc | ggc | aag | ggc | gtc  | atg | ctg | gcc | gtg | agc  | caa | ggc | cgc | gtg | 7624 |
| Leu  | Ile | Gly | Lys | Gly | Val  | Met | Leu | Ala | Val | Ser  | Gln | Gly | Arg | Val |      |
| 2515 |     |     |     |     | 2520 |     |     |     |     | 2525 |     |     |     |     |      |
| cag  | acc | aac | gtg | ctc | aac  | atc | gcc | aac | gag | gac  | tgc | atc | aag | gtg | 7669 |
| Gln  | Thr | Asn | Val | Leu | Asn  | Ile | Ala | Asn | Glu | Asp  | Cys | Ile | Lys | Val |      |
| 2530 |     |     |     |     | 2535 |     |     |     |     | 2540 |     |     |     |     |      |
| gcg  | gcg | gtg | ctc | aac | aac  | gcc | ttc | tac | ctg | gag  | aac | ctg | cac | ttc | 7714 |
| Ala  | Ala | Val | Leu | Asn | Asn  | Ala | Phe | Tyr | Leu | Glu  | Asn | Leu | His | Phe |      |
| 2545 |     |     |     |     | 2550 |     |     |     |     | 2555 |     |     |     |     |      |
| acc  | atc | gag | ggc | aag | gac  | aca | cac | tac | ttc | atc  | aag | acc | acc | aca | 7759 |
| Thr  | Ile | Glu | Gly | Lys | Asp  | Thr | His | Tyr | Phe | Ile  | Lys | Thr | Thr | Thr |      |
| 2560 |     |     |     |     | 2565 |     |     |     |     | 2570 |     |     |     |     |      |
| ccc  | gag | agc | gac | ctg | ggc  | aca | ctg | cgg | ctg | acg  | agc | ggc | cgc | aag | 7804 |
| Pro  | Glu | Ser | Asp | Leu | Gly  | Thr | Leu | Arg | Leu | Thr  | Ser | Gly | Arg | Lys |      |
| 2575 |     |     |     |     | 2580 |     |     |     |     | 2585 |     |     |     |     |      |
| gcc  | ctg | gag | aac | ggg | atc  | aac | gtg | acc | gtg | tct  | cag | tcc | acc | acg | 7849 |
| Ala  | Leu | Glu | Asn | Gly | Ile  | Asn | Val | Thr | Val | Ser  | Gln | Ser | Thr | Thr |      |
| 2590 |     |     |     |     | 2595 |     |     |     |     | 2600 |     |     |     |     |      |
| gtg  | gtg | aac | ggc | agg | act  | cgc | agg | ttc | gcc | gac  | gtg | gag | atg | cag | 7894 |
| Val  | Val | Asn | Gly | Arg | Thr  | Arg | Arg | Phe | Ala | Asp  | Val | Glu | Met | Gln |      |
| 2605 |     |     |     |     | 2610 |     |     |     |     | 2615 |     |     |     |     |      |
| ttc  | ggc | gcc | ctg | gca | ctg  | cat | gtg | cgc | tat | ggc  | atg | acg | ctg | gac | 7939 |
| Phe  | Gly | Ala | Leu | Ala | Leu  | His | Val | Arg | Tyr | Gly  | Met | Thr | Leu | Asp |      |
| 2620 |     |     |     |     | 2625 |     |     |     |     | 2630 |     |     |     |     |      |
| gag  | gag | aag | gcg | cgc | att  | ctg | gag | cag | gcg | cgc  | cag | cgc | gcg | ctc | 7984 |
| Glu  | Glu | Lys | Ala | Arg | Ile  | Leu | Glu | Gln | Ala | Arg  | Gln | Arg | Ala | Leu |      |
| 2635 |     |     |     |     | 2640 |     |     |     |     | 2645 |     |     |     |     |      |
| gcc  | cgg | gcg | tgg | gca | cgg  | gag | cag | cag | cgc | gtg  | cgc | gac | ggc | gag | 8029 |
| Ala  | Arg | Ala | Trp | Ala | Arg  | Glu | Gln | Gln | Arg | Val  | Arg | Asp | Gly | Glu |      |
| 2650 |     |     |     |     | 2655 |     |     |     |     | 2660 |     |     |     |     |      |
| gag  | ggc | gcg | cgc | ctc | tgg  | acg | gag | ggc | gag | aaa  | cgg | cag | ctg | ctg | 8074 |
| Glu  | Gly | Ala | Arg | Leu | Trp  | Thr | Glu | Gly | Glu | Lys  | Arg | Gln | Leu | Leu |      |

| 2665                   | 2670                   | 2675                   |      |
|------------------------|------------------------|------------------------|------|
| agc gct ggc aag gtg    | cag ggc tac gat ggg    | tac tac gta ctg tcg    | 8119 |
| Ser Ala Gly Lys Val    | Gln Gly Tyr Asp Gly    | Tyr Tyr Val Leu Ser    |      |
| 2680                   | 2685                   | 2690                   |      |
| gtg gag cag tac ccc    | gag ctg gct gac agt    | gcc aac aac atc cag    | 8164 |
| Val Glu Gln Tyr Pro    | Glu Leu Ala Asp Ser    | Ala Asn Asn Ile Gln    |      |
| 2695                   | 2700                   | 2705                   |      |
| ttc ttg cga caa agt    | gag atc ggc aag agg    | taa cccccgggcc         | 8207 |
| Phe Leu Arg Gln Ser    | Glu Ile Gly Lys Arg    |                        |      |
| 2710                   | 2715                   |                        |      |
| accctgtgctg agattctcct | gtagcacaat ccaaaccgga  | ctctccaaag agccttccaa  | 8267 |
| aatgacactg ctctgcagac  | agacacatcg cagatacaca  | cgcaacacaa accagaaaca  | 8327 |
| aagacaactt tttttttttt  | ctgaatgacc ttaaagggtga | tcggcttttaa agaatatgtt | 8387 |
| tacatacgca tatcgctgca  | ctcaattgga ctggaagtat  | gagaaaggaa aaaaaagcat  | 8447 |
| taaaaaaggc aacgttttgc  | catgaccctt ctgtaccttc  | gaggcactgt atttaacaaa  | 8507 |
| ggtttttaaaa aggaaaaaaa | aatgcgtaca atgtttccag  | atattactga attgtcgacc  | 8567 |
| tttgcttaca ggaagtaatc  | tctacttagg atgtgatata  | tatagatctg ttcatttttaa | 8627 |
| aatgtggggc aaagttactg  | tttatagaac ccaactgctt  | tcccgtgctg ctttgtaaaa  | 8687 |
| ggacactggc acaagggacg  | tctgcttcgg cggggattta  | ataatggatt ttactaacat  | 8747 |
| ggcttgccct gggagggaaa  | aactgacgaa tagaatcctt  | gtcactgata agcaaaggaa  | 8807 |
| accctgattt ttttgtaaata | tatgtgagac aagttgttta  | tggattttta tatgaattac  | 8867 |
| aatttactgt acatcaaata  | ttagtctcag aggagttaat  | ttatgtaaag tgtttaaaaa  | 8927 |
| gtttatactt aaaaataaaa  | tgataaaaac aaaaaaa     |                        | 8964 |
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| <213>                  | Homo sapiens           |                        |      |
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| gccacctctg cctgagacct  | ccggtcgccg caagaagctg  | gagagg atg tac agc     | 115  |
|                        |                        | Met Tyr Ser            |      |

|                                                                 |     |
|-----------------------------------------------------------------|-----|
| gtt gac cgt gtg tct gac gac atc cct att cgt acc tgg ttc ccc aag | 163 |
| Val Asp Arg Val Ser Asp Asp Ile Pro Ile Arg Thr Trp Phe Pro Lys |     |
| 5 10 15                                                         |     |
| gaa aat ctt ttc agc ttc cag aca gca acc aca act atg caa gcg gtg | 211 |
| Glu Asn Leu Phe Ser Phe Gln Thr Ala Thr Thr Thr Met Gln Ala Val |     |
| 20 25 30 35                                                     |     |
| ttc agg ggc tac gcg gag agg aag cgc cgg aaa cgg gag aat gat tcc | 259 |
| Phe Arg Gly Tyr Ala Glu Arg Lys Arg Arg Lys Arg Glu Asn Asp Ser |     |
| 40 45 50                                                        |     |
| gcg tct gta atc cag agg aac ttc cgc aaa cac ctg cgc atg gtc ggc | 307 |
| Ala Ser Val Ile Gln Arg Asn Phe Arg Lys His Leu Arg Met Val Gly |     |
| 55 60 65                                                        |     |
| agc cgg agg gtg aag gcc cag acg ttc gct gag cgg cgc gag cgg agc | 355 |
| Ser Arg Arg Val Lys Ala Gln Thr Phe Ala Glu Arg Arg Glu Arg Ser |     |
| 70 75 80                                                        |     |
| ttc agc cgg tcc tgg agc gac ccc acc ccc atg aaa gcc gac act tcc | 403 |
| Phe Ser Arg Ser Trp Ser Asp Pro Thr Pro Met Lys Ala Asp Thr Ser |     |
| 85 90 95                                                        |     |
| cac gac tcc cga gac agc agt gac ctg cag agc tcc cac tgc acg ctg | 451 |
| His Asp Ser Arg Asp Ser Ser Asp Leu Gln Ser Ser His Cys Thr Leu |     |
| 100 105 110 115                                                 |     |
| gac gag gcc ttc gag gac ctg gac tgg gac act gag aag ggc ctg gag | 499 |
| Asp Glu Ala Phe Glu Asp Leu Asp Trp Asp Thr Glu Lys Gly Leu Glu |     |
| 120 125 130                                                     |     |
| gct gtg gcc tgc gac acc gaa ggc ttc gtg cca cca aag gtc atg ctc | 547 |
| Ala Val Ala Cys Asp Thr Glu Gly Phe Val Pro Pro Lys Val Met Leu |     |
| 135 140 145                                                     |     |
| att tcc tcc aag gtg ccc aag gct gag tac atc ccc act atc atc cgc | 595 |
| Ile Ser Ser Lys Val Pro Lys Ala Glu Tyr Ile Pro Thr Ile Ile Arg |     |
| 150 155 160                                                     |     |
| cgg gat gac ccc tcc atc atc ccc atc ctc tac gac cat gag cac gca | 643 |
| Arg Asp Asp Pro Ser Ile Ile Pro Ile Leu Tyr Asp His Glu His Ala |     |
| 165 170 175                                                     |     |
| acc ttc gag gac atc ctt gag gag ata gag agg aag ctg aac gtc tac | 691 |
| Thr Phe Glu Asp Ile Leu Glu Glu Ile Glu Arg Lys Leu Asn Val Tyr |     |
| 180 185 190 195                                                 |     |
| cac aag gga gcc aag atc tgg aaa atg ctg att ttc tgc cag gga ggt | 739 |
| His Lys Gly Ala Lys Ile Trp Lys Met Leu Ile Phe Cys Gln Gly Gly |     |
| 200 205 210                                                     |     |
| cct gga cac ctc tat ctc ctc aag aac aag gtg gcc acc ttt gcc aaa | 787 |
| Pro Gly His Leu Tyr Leu Leu Lys Asn Lys Val Ala Thr Phe Ala Lys |     |

| 215                                                                                                                                                   | 220 | 225 |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|------|
| gtg gag aag gaa gag gac atg att cac ttc tgg aag cgg ctg agc cgc<br>Val Glu Lys Glu Glu Asp Met Ile His Phe Trp Lys Arg Leu Ser Arg<br>230 235 240     |     |     | 835  |
| ctg atg agc aaa gtg aac cca gag ccg aac gtc atc cac atc atg ggc<br>Leu Met Ser Lys Val Asn Pro Glu Pro Asn Val Ile His Ile Met Gly<br>245 250 255     |     |     | 883  |
| tgc tac att ctg ggg aac ccc aat gga gag aag ctg ttc cag aac ctc<br>Cys Tyr Ile Leu Gly Asn Pro Asn Gly Glu Lys Leu Phe Gln Asn Leu<br>260 265 270 275 |     |     | 931  |
| agg acc ctc atg act cct tat agg gtc acc ttc gag tca ccc ctg gag<br>Arg Thr Leu Met Thr Pro Tyr Arg Val Thr Phe Glu Ser Pro Leu Glu<br>280 285 290     |     |     | 979  |
| ctc tca gcc caa ggg aag cag atg atc gag acg tac ttt gac ttc cgg<br>Leu Ser Ala Gln Gly Lys Gln Met Ile Glu Thr Tyr Phe Asp Phe Arg<br>295 300 305     |     |     | 1027 |
| ttg tat cgc ctg tgg aag agc cgc cag cac tcg aag ctg ctg gac ttt<br>Leu Tyr Arg Leu Trp Lys Ser Arg Gln His Ser Lys Leu Leu Asp Phe<br>310 315 320     |     |     | 1075 |
| gac gac gtc ctg tga ggggcagagg cctccgcccc gtcaccatca ggccactccc<br>Asp Asp Val Leu<br>325                                                             |     |     | 1130 |
| tctgcaccgg gacctggggc tgggcccgcct cgtgctcccc gggactgtgt agctccggtc                                                                                    |     |     | 1190 |
| tcgcctggag ccacttcagg gcacctcaga cgttgctcag gttccccctg tgggttcagg                                                                                     |     |     | 1250 |
| tcctcgctgc acccgtggcc gcagaggctg cagtccctgg gggccgggag gatcccgccc                                                                                     |     |     | 1310 |
| tgtggcccggt ggatgctcag cggccaggca ctgacctgcc atgcctcgcc tggaggctca                                                                                    |     |     | 1370 |
| gctgtggggca tccctccatg gggttcatag aaataagtgc aatttctaca cccccgaaac                                                                                    |     |     | 1430 |
| aattcaaagg gaagcagcat ttcttggttaa ctagttaagc actatgctgc tagttacagt                                                                                    |     |     | 1490 |
| gtaggcaccc cggcccagca gcccagcagc ccacatgtgt tcaggaccct ccctgcccac                                                                                     |     |     | 1550 |
| ccccccctg ccgtatcgat caccagcacc aggggtggccc gtgtgctggt ggccagcgtc                                                                                     |     |     | 1610 |
| gccgggctgc ccagcctggc tctgtctaca ctggccagagt ctctgggtct gtctacactg                                                                                    |     |     | 1670 |
| gccgagtctc cgactgtctg tgctttcact tacactcctc ttgccacccc ccatccctgc                                                                                     |     |     | 1730 |
| ttacttagac ctcagccggc gccggaccgc gtaggggcag tctgggcagc aggaaggaag                                                                                     |     |     | 1790 |
| ggcgcagcgt cccctccttc agaggaggct ctgggtgggg cctgctcctc atcccccaa                                                                                      |     |     | 1850 |
| gcccacccag cactctcatt gctgctgttg agttcagctt ttaccagcct cagtgtggag                                                                                     |     |     | 1910 |



gctccatccc agcacacagg cctggggctt ggcagggggc cagctggggc tgggccctgg 1970  
gttttgagaa actcgctggc accacagtgg gcccttgga cccggccgcgc agctggtgga 2030  
ctgtaggggc tcctgactgg gcacaggagc tcccagcttt tgtccacggc cagcaggatg 2090  
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tgagggcacc tggtgtgtt cccagctgag ggagggctgg ggcggggggc gggcttgga 2210  
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<212> DNA  
<213> Danio rerio

<220>  
<221> exon  
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Val Pro Arg Met Cys Pro Ala Gly Ser Trp Pro His Pro Ser Gly Leu  
1 5 10 15  
tgg gct gga cca gcc acc tct gcc tga gac ctc cgg tcg ccg caa gaa 96  
Trp Ala Gly Pro Ala Thr Ser Ala Asp Leu Arg Ser Pro Gln Glu  
20 25 30  
gct gga gag gat gta cag cgt tga ccg tgt gtc tga cga cat ccc tat 144  
Ala Gly Glu Asp Val Gln Arg Pro Cys Val Arg His Pro Tyr  
35 40 45  
tcg tac ctg gtt ccc caa gga aaa tct ttt cag ctt cca gac agc aac 192  
Ser Tyr Leu Val Pro Gln Gly Lys Ser Phe Gln Leu Pro Asp Ser Asn  
50 55 60  
cac aac tat gca agc ggt gtt cag ggg cta cgc gga gag gaa gcg ccg 240  
His Asn Tyr Ala Ser Gly Val Gln Gly Leu Arg Gly Glu Glu Ala Pro  
65 70 75  
gaa acg gga gaa tga ttc cgc gtc tgt aat cca gag gaa ctt ccg caa 288  
Glu Thr Gly Glu Phe Arg Val Cys Asn Pro Glu Glu Leu Pro Gln  
80 85 90  
aca cct gcg c atggtcggca gccggagggt gaaggcccag acgttcgctg 338  
Thr Pro Ala  
95  
agcggcgcga gcggagcttc agccggctct ggagcgaccc ccccccatg aaagccgaca 398  
cttccccaga ctcccagagac agcagtgacc tgcagagctc ccaactgcacg ctggacgagg 458

|                                                                    |      |
|--------------------------------------------------------------------|------|
| ccttcgagga cctggactgg gacactgaga agggcctgga ggctgtggcc tgcgacaccg  | 518  |
| aaggcttcgt gccaccaaag gtcatgctca tttcctccaa ggtgcccgaag gctgagtaca | 578  |
| tccccactat catccgccgg gatgaccctt ccatcatccc catcctctac gaccatgagc  | 638  |
| acgcaacctt cgaggacatc cttgaggaga tagagaggaa gctgaacgtc taccacaagg  | 698  |
| gagccaagat ctggaaaatg ctgattttct gccagggagg tcctggacac ctctatctcc  | 758  |
| tcaagaacaa ggtggccacc tttgccaaag tggagaagga agaggacatg attcacttct  | 818  |
| ggaagcggct gagccgctg atgagcaaag tgaaccaga gccgaacgtc atccacatca    | 878  |
| tgggctgcta cattctgggg aacccaatg gagagaagct gttccagaac ctcaggaccc   | 938  |
| tcatgactcc ttatagggtc accttcgagt caccctgga gctctcagcc caaggggaagc  | 998  |
| agatgatcga gacgtacttt gacttccggt tgtatgcct gtggaagagc cgccagcact   | 1058 |
| cgaagctgct ggactttgac gacgtcctgt gaggggcaga ggccctccgc cagtcaccat  | 1118 |
| caggccactc cctctgcacc gggacctggg gctgggcccgc ctctgtctcc ccgggactgt | 1178 |
| gtagctccgg tctcgctgg agccacttca gggcacctca gacgttgctc aggttcccc    | 1238 |
| tgtgggttcc ggtcctcgct gcacctgtgg ccgcagaggc tgcagtccct gggggccggg  | 1298 |
| aggatccgc cctgtggccc gtggatgctc agcggccagg cactgacctg ccatgcctcg   | 1358 |
| cctggaggct cagctgtggg catccctcca tggggttcat agaaataagt gcaatttcta  | 1418 |
| cacccccgaa acaattcaaa gggaagcagc atttcttgtt aactagttaa gcactatgct  | 1478 |
| gctagttaca gtgtaggcac ccgggccag cagcccagca gccacatgt gttcaggacc    | 1538 |
| ctccctgcc accccctccc tgccgtatcg atcaccagca ccagggtggc ccgtgtgcgt   | 1598 |
| ggggccagcg tcgccgggct gccagcctg gctctgtcta cactggccga gtctctgggt   | 1658 |
| ctgtctacac tggccgagtc tccgactgtc tgtgctttca cttacactcc tcttgccacc  | 1718 |
| ccccatccct gcttacttag acctcagccg gcgccggacc cggtaggggc agtctgggca  | 1778 |
| gcaggaagga agggcgcagc gtcccctcct tcagaggagg ctctgggtgg ggctgctcc   | 1838 |
| tcatcccccc aagcccaccc agcactctca ttgctgctgt tgagttcagc ttttaccagc  | 1898 |
| ctcagtgtgg aggtccatc ccagcacaca ggccctggggc ttggcagggg ccagctggg   | 1958 |
| gctgggcccct gggttttgag aaactcgctg gcaccacagt gggcccctgg acccgccgc  | 2018 |
| gcagctggtg gactgtaggg gctcctgact gggcacagga gctcccagct tttgtccacg  | 2078 |
| gccagcagga tgggctgtcg tgtatatagc tggggcgagg gggcaggccc cccttgtgca  | 2138 |

gagccagggg tctgagggca cctggctgtg ttcccagctg agggaggggt ggggcggggg 2198

ccgggcttgg aacgatgtac gataccctca tagtgaccat taaacctgat cctcc 2253

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<211> 40

<212> PRT

<213> Artificial Sequence

<220>

<223> TCAP 3 General Motif

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<222> (5) .. (5)

<223> X=G, S or A

<220>

<221> MISC\_FEATURE

<222> (6) .. (6)

<223> X=G or R

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<222> (9) .. (9)

<223> X=L or Q

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<222> (32) .. (32)

<223> X=V or I

<400> 135

Gln Leu Leu Ser Xaa Xaa Lys Val Xaa Gly Tyr Asp Gly Tyr Tyr Val  
1 5 10 15

Leu Ser Xaa Glu Gln Tyr Pro Glu Leu Ala Asp Ser Ala Asn Asn Xaa  
20 25 30

Gln Phe Leu Arg Gln Ser Glu Ile  
35 40

<210> 136

<211> 36

<212> PRT

<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; G. gallus TCAP2

&lt;400&gt; 136

Thr Gly Arg Val Gln Gly Tyr Glu Gly Tyr Tyr Val Leu Pro Val Glu  
 1 5 10 15

Gln Tyr Pro Glu Leu Ala Asp Ser Ser Ser Asn Ile Gln Phe Leu Arg  
 20 25 30

Gln Asn Glu Met  
 35

&lt;210&gt; 137

&lt;211&gt; 251

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Human Ten M1

&lt;400&gt; 137

Thr Ile Leu Gly Ile Gln Cys Glu Leu Gln Lys Gln Leu Arg Asn Phe  
 1 5 10 15

Ile Ser Leu Asp Gln Leu Pro Met Thr Pro Arg Tyr Asn Asp Gly Arg  
 20 25 30

Cys Leu Glu Gly Gly Lys Gln Pro Arg Phe Ala Ala Val Pro Ser Val  
 35 40 45

Phe Gly Lys Gly Ile Lys Phe Ala Ile Lys Asp Gly Ile Val Thr Ala  
 50 55 60

Ile Ile Gly Val Ala Asn Glu Asp Ser Arg Arg Leu Ala Ala Ile Leu  
 65 70 75 80

Asn Asn Ala His Tyr Leu Glu Asn Leu His Phe Thr Ile Glu Gly Arg  
 85 90 95

Asp Thr His Tyr Phe Ile Lys Leu Gly Ser Leu Glu Glu Asp Leu Val  
 100 105 110

## 77/77

Leu Ile Gly Asn Thr Gly Gly Arg Arg Ile Leu Glu Asn Gly Val Asn  
 115 120 125

Val Thr Val Ser Gln Met Thr Ser Val Leu Asn Gly Arg Thr Arg Arg  
 130 135 140

Phe Ala Asp Ile Gln Leu Gln His Gly Ala Leu Cys Phe Asn Ile Arg  
 145 150 155 160

Tyr Gly Thr Thr Val Glu Glu Glu Lys Asn His Val Leu Glu Ile Ala  
 165 170 175

Arg Gln Arg Ala Val Ala Gln Ala Trp Thr Lys Glu Gln Arg Arg Leu  
 180 185 190

Gln Glu Gly Glu Glu Gly Ile Arg Ala Trp Thr Glu Gly Glu Lys Gln  
 195 200 205

Gln Leu Leu Ser Thr Gly Arg Val Gln Gly Tyr Asp Gly Tyr Phe Val  
 210 215 220

Leu Ser Val Glu Gln Tyr Leu Glu Leu Ser Asp Ser Ala Asn Asn Ile  
 225 230 235 240

His Phe Met Arg Gln Ser Glu Ile Gly Arg Arg  
 245 250

<210> 138

<211> 40

<212> PRT

<213> Artificial Sequence

<220>

<223> G. gallus TCAP-1

<400> 138

Gln Leu Leu Asn Thr Gly Arg Val Gln Gly Tyr Asp Gly Tyr Phe Val  
 1 5 10 15

Leu Ser Val Glu Gln Tyr Leu Glu Leu Ser Asp Ser Ala Asn Asn Ile  
 20 25 30

His Phe Met Arg Gln Ser Glu Ile  
 35 40